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A Union View of Modernisation

SPEAKING at Paignton on May 17, at the opening session of his society's Annual Assembly of Delegates, Mr. J. L. Simons, President of the Associated Society of Locomotive Engineers & Firemen, stated that, to effect almost complete renewal and modernisation of an industry while continuing to give a 24-hr., seven-day-a-week service, was an engineering and administrative feat without parallel in our history. The public and the people who were making the future of the industry their particular concern must realise not only the immensity of the task but that, with its achievement, this country would possess the finest as well as the safest system of transport in the world. Modernisation was making a real impact on railway services both operationally and economically, and further developments and improvements would now come more rapidly than ever. Services were not only far better than they were—they were attracting more business. Substantial increases in passenger traffic had followed the introduction of diesel trains in almost every area where they had been tried. When, for example, diesel services were introduced between Crewe, Stoke, and Derby in September, 1957, receipts rose within a year and a half to £68,552, an increase of 60 per cent over figures

for the last period of steam operation. Passenger numbers increased by 42 per cent, and similar improvements were reported on many other routes following the replacement of steam trains by diesel units. One of the most spectacular increases recorded followed the introduction of a new diesel train service between Leeds and Barnsley in March, 1958. On this route, during the first full year of diesel operation, receipts rose by more than 400 per cent and passenger numbers by 263 per cent. Regarding the increasing redundancy, to which he had referred the previous year, Mr. Simons said that the period under review had seen a change in the problem but not a solution. There were still many areas in the country where redundancy remained acute, but it was also true that, in many areas, the problem was one of staff shortage. The claim made on behalf of the Society for a 40-hr. week to be taken in five days had been submitted, and the union was awaiting a reply from management. The negotiations on the Guillebaud Report had no bearing on this claim, and Mr. Simons said that the footplatemen would not be content to "lag behind industry generally in this matter."

New President for Institute of Transport

MR. K. W. C. GRAND, the new President of the Institute of Transport, who takes office in October, served the Great Western Railway and the Western Region of British Railways for 40 years before becoming a full-time member of the British Transport Commission in February last year. Early in his career, which was as broad as it was outstanding, he was selected to represent his company for three years as General Agent in the U.S.A. and Canada. He later took a prominent part in the company's advertising and publicity. He was associated with Squadron-Leader S. B. Collett, Assistant Secretary, G.W.R., with the organisation of the first railway air service in this country. Mr. Grand's knowledge of transport also embraces shipping and road services. He is Chairman of the Fishguard & Rosslare Railways & Harbours Company, and has served on the boards of a number of railway-associated bus companies. He has been closely connected with the Railway Clearing House, of which he became Chairman in 1953. He held office as General Manager, or its equivalent, for 11 years, on the Western Region. His varied experience and all-round knowledge of transport affairs make him a particularly apt choice as the new President of the Institute of Transport.

Anglo-French Tourism

A FURTHER strengthening of the bonds between Thos. Cook & Son Ltd., and the International Sleeping Car Company is indicated by the recent appointment to the board of the latter company of Sir John Elliot, Chairman of Thos. Cook & Son Ltd. It is the first time that the chairman of Cook's has had a seat on the board of the Wagons-Lits Company, although co-operation has always been close and two managing directors of that company have been on the board of Cook's. Now two seats will be occupied by British directors, the other being Sir Brian Robertson, Chairman of the British Transport Commission, hitherto the sole British representative. The pre-war association of the two undertakings was disrupted by hostilities, but since then a close partnership has been resumed; Wagons-Lits now owns some 25 per cent of Thos. Cook & Son (Continental & Overseas) Ltd. Cook's and Wagons-Lits have arrangements for mutual representation in many parts of the world, and the strengthening of the board should do much to assist in the development of mutually beneficial services. Sir John Elliot's close association with and long experience of Continental matters, dating to his Southern Railway days, coupled with his responsibility for Thos. Cook & Son Ltd., are valuable qualifications for his latest appointment.

French Credits for Brazilian Railways?

RECENT approaches by the French to the Brazilian Government as to payment of indemnities to the shareholders of the former Sao Paulo-Rio Grande and Vitoria-Minas Railway Companies and the Port of Para Company, now nationalised, are likely to prove successful because of the desire by Brazil to obtain credits amounting to some U.S.

\$200,000,000 for the import of French-built railway equipment. The approaches included a diplomatic note which was returned by Brazil as discourteous. Following a visit last October by Monsieur Antoine Pinay, the former French Minister of Finance, the credits were authorised and the two governments agreed to set up arbitration courts to pronounce on the payment of the indemnities. The Attorney-General to the Republic, selected as one of Brazil's arbitrators, declined on the grounds that the proposed court was contrary to the Constitution. The question provoked controversy in Government circles where it was claimed that the shareholders had received in the past large amounts and were not entitled to any further indemnity. A Bill was then tabled to cancel the law authorising the arbitration court, but was not voted.

U.K.R.A.S. Aids Hungarian Railways

HUNGARY is the first country on the Continent of Europe to make use of the United Kingdom Railway Advisory Service. Two officers of the Hungarian State Railways, Mr. Toelgyes, Manager (Machinery), and Mr. Vaarhegyi, Manager (Motive Power), have been visiting Britain under the auspices of U.K.R.A.S. to obtain information on British Railways experience in the operation and maintenance of various types of diesel-electric locomotives of 2,000 h.p. and upwards. Their visit is of special significance in that, industrially, Hungary is relatively highly developed. Hungarian industry has been and is active in supplying railways overseas with diesel locomotives, multiple-unit stock, and railcars. British Railways nevertheless has been able to show the visitors much of interest concerning up-to-date locomotives operation and design, fields in which British Railways and the British railway equipment industry have acquired world-wide reputations for sound methods and high technical skill. Because of the intensity of services and speeds attained, railways in this country afford a considerably better proving ground on a large scale for all forms of railway equipment than is available in most countries overseas.

Overseas Railway Traffic

THE approximate gross earnings of the Indian railways for March, 1960, amounted to Rs.39.30 crores representing an increase of 7.64 per cent over the corresponding figures of March, 1959. During the month the number of wagons loaded with goods traffic increased by 7.40 per cent on the broad gauge and by 6.43 per cent on the metre gauge as compared with March 1959. Total earnings from all sources during the year ended March 31, 1960 amounted to Rs.418.47 crores compared with Rs.390.77 crores in the previous financial year. Canadian Pacific Railway revenue for March amounted to \$41,161,631 compared with \$43,110,244 in March, 1959. Expenses were \$36,464,267 (\$37,971,408), resulting in net earnings of \$4,697,364 (\$5,138,836). Aggregate revenue for the period January-March amounted to \$113,964,691 compared with \$116,397,807 in the corresponding period last year. Costa Rica Railway receipts for March 1960 amounted to colones 2,358,084 compared with colones 2,426,640 in March 1959, a decrease of colones 68,556. Aggregate receipts from July 1, 1959 amounted to colones 19,875,257 compared with colones 17,960,461 in the corresponding period of 1958-59.

British Products Displayed in New York

EQUIPMENT and materials used on railways and by suppliers of railway equipment will be featured at the British Exhibition in New York on June 10-26. The display, sponsored jointly by the Federation of British Industries and the Dollar Exports Council, will be held in the new exhibition building, the Coliseum, at Columbus Circle, in Central Park, and will be the largest foreign trade show ever to be staged in New York. The wide range of technical exhibits can be seen from the list, on another page, of some of the firms participating. They include makers of electrical equipment of all kinds, telephones and cables, of mechanical handling equipment, and of railway rolling stock. The British Travel & Holidays Association will supply information and literature on railway and other travel in Great Britain. The literature displayed and distributed by the Council of Industrial Design will feature locomotives and rolling stock designed and built in Britain.

Creating a Passenger Railhead at Stafford

A PART from the phasing of the civil engineering work, to minimise inconvenience to passengers and interference with train running, the most notable feature of the reconstruction of Stafford Station, described elsewhere in this issue, is the creation of a fully-equipped passenger railhead. The station is on the Euston-Crewe main line of the London Midland Region, British Railways and the junction with the line from Birmingham and Wolverhampton. Both these sections are being electrified at 25kV., 50 cycles, and the opportunity of the conversion is being taken to re-build the century-old structure. Provision of two car parks and a lay-by for town and country buses will make the station a railhead in the full sense—a transfer point between the train and the road services which feed the railway. Direct access between the combined waiting and refreshment room and the roadway outside will add to the significance of the station as a centre of public activity. Stafford is also an important interchange point for passengers, with a considerable postal traffic, and provision is being made accordingly.

Management and Men Discuss Railways' Future

A NEW concept in communication between management and men was the subject of an experiment last week, when Mr. L. M. Sayers, Assistant General Manager (Administration), North Eastern Region, British Railways, explained to 300 representatives of traffic staff in the West Riding, who met Regional and West Riding Area officers at Leeds, details of re-equipment and modernisation plans for the Area. The meeting afterwards discussed them informally in a friendly atmosphere. Mr. F. C. Margetts, Assistant General Manager (Traffic) of the Region, had intended to give the survey, but was absent through illness, and the paper he had prepared was read by Mr. Sayers. The wide scope of the survey can be gathered from the brief account elsewhere in this issue. Many aspects of working were covered, including security of employment and working conditions, and the need for the utmost efficiency in the provision and sale of transport. Questions were invited and answered by a panel of West Riding District Traffic Officers under the chairmanship of Mr. E. E. Cowell, Area Traffic Manager. Time did not allow many of the wide diversity of questions to be answered. This bold venture was well worth while. West Riding railwaymen now know where they are going, and why, and they can face the future with confidence.

Portuguese Railways Development Plan

RAILWAY modernisation and re-equipment under the terms of the Portuguese Second Development Plan, 1959-64, is proceeding apace in many sectors. Electrification is to play an important part in the general scheme, with the conversion of the main Northern Line between Entrecampos and Oporto, as well as short sections radiating from the latter city, and involving a total of 241 route-km. (150 miles). Sub-stations are to be established at Alfaiates, Estarreja and Ermesinde. Power will be drawn from the local electricity authorities' lines at 60kV. and fed to the overhead conductor at 25kV. 50 cycles a.c. Electric locomotives to be used will not exceed 68 tons, and will be capable of hauling passenger stock at a maximum speed of 81 m.p.h. Automatic block signalling will be installed between Aveiro and Gaia, and Campanha and Ermesinde, with C.T.C. between Gaia and Campanha. All telecommunication networks between stations and the various services will be put in cable to avoid interference with the traction current. Contracts have been awarded to Portuguese industry, though much of the material is being obtained from other countries.

Extending the Holiday Season

AS prosperity increases in Western Europe, the heavy demands placed on railways and other transport by the short, concentrated summer holiday season, are aggravated. One reason why July and August are preferred is the incidence of school holidays. According to Mr. Arthur Haulot, High Commissioner, European Travel Commission, in an article in the current issue of the *Journal of the Institute of Travel Agents*,

statistics show that only 35-45 per cent of those whom he terms "workers"—presumably wage-earners—have children of school age. He claims that at least 30 per cent of European workers, without children of school age and not tied to certain industries which demand their presence at certain periods, could easily take their annual holiday at any time. Efforts to extend the holiday season in Britain and elsewhere have not been successful. The main reason, apart from force of habit, is probably the notion that the weather is likely to be better in July and August in most parts of Europe. That is certainly not true of many mountainous areas. The railways are taking active steps by offering fare reductions in the early and late summer and some railways stress, in their advertising, other advantages of travel outside the peak season.

Advanced Study on Electric Traction

IN sponsoring and financially supporting a new section for electric traction in the Department of Electrical Engineering at Imperial College of Science & Technology, the British Transport Commission jointly with the British Electrical & Allied Manufacturers Association have taken an important step towards providing for the study of electric traction problems appropriate to the situation arising from the electrification of British Railways. It will provide an academic centre, hitherto lacking in this country, for the post-graduate training of engineers for the railways and the manufacturers of traction equipment, and at the same time provide a contribution to the volume of research on electric traction problems. The Head of the Department of which the electric traction section will be part is Professor A. Tustin, who, until 1947, worked on the manufacturing side of electric traction. He has for some years been a member of the Research Advisory Council to the B.T.C. Ten-month post-graduate courses on electric traction will commence in October, 1960.

Drastic Proposal for Closing Railways

CLOSURE as uneconomic of 60 per cent, perhaps even 80 per cent, of the route-mileage of British Railways is suggested by Professor Gilbert Walker, who occupies the chair of Commerce in the University of Birmingham, in the current issue of the *Westminster Bank Review*. He bases his figures on the indications of traffic density given in the report published in 1951 on railway electrification. Even when account is taken of the high density and importance for the national economy of goods and passenger traffic over a relatively few routes—with a fair proportion of quadruple track—the suggestion that 60 per cent of the railway route-mileage can never be made to pay may be disputed. One may wonder whether the Professor has assessed the value of feeder lines. That is not to say that a good many lines may have to be closed, as was indicated by the Prime Minister in March. This is one of the matters being examined by the Special Advisory Group. An important factor is the part played by railways in satisfying the public need for transport. If this is admitted, it is impracticable to deprive in a doctrinaire manner large parts of Britain of their railway facilities.

Powers of Consultative Committees

FORESTALLING by the British Transport Commission of a decision of the transport users' consultative committees as to closing of branch lines was alleged in the House of Commons last week. Mr. J. C. Jennings, Conservative Member for Burton-on-Trent, stated that 93.5 per cent of the cases brought for consideration before committees had been found in favour of the Commission, and that he had "irrefutable evidence" that one decision had been forestalled by two months. He adduced no proof. Another Conservative, Mr. J. A. Leavey, Member for Heywood & Royton, pressed the need for legislation to give the committees more powers. The Parliamentary Secretary to the Ministry of Transport, Mr. John Hay, rightly pointed out that no opportunities should be lost of effecting useful economies on the railways, bearing in mind that "in the current year £90 million is having to be found in direct subsidy for the B.T.C." The Government does not propose to introduce legislation to alter the committees' powers. There is no need for this. The fact that the committees often, but by no means always, agree

to the Commission's proposals for closing uneconomic railway lines, shows that the proposals seem reasonable to representatives of varied interests.

Success of Kings Cross-Sheffield Pullman Services

IN September, 1958, the Eastern Region, British Railways, introduced a luxury service between Kings Cross and Sheffield Victoria via Retford, the first Pullman train in Britain to be hauled by diesel-electric locomotives. The motive power is normally an English Electric Type "4" 2,000-h.p. 1 Co-Co 1 diesel-electric locomotive. A six-car Pullman set has since run regularly, four times a day, between the two cities, in under 3 hr. for each trip. This is the fastest ever regular timing between Sheffield and London. The early morning and evening services have borne the name "Master Cutler," a reminder of one of Sheffield's principal industries. In less than two years the Pullman set has travelled more than a quarter-of-a-million miles, running 4,500 hr. in traffic at an average speed of nearly 60 m.p.h. In little more than a year-and-a-half this one train, providing four services a day, has carried 160,000 passengers and earned nearly £500,000 of revenue.

Technical Research on British Railways

MODERNISATION and re-equipment of British Railways are supported by an intensive research programme. This is, as it must be, always ahead of current development in constantly seeking out new ideas and techniques which may improve efficiency or lower costs. Research by individual railways in Britain dates back many years. The large volume of research work by the British Transport Commission and British Railways, which has a wide scope, was begun well in advance of implementation of the modernisation programme, which started in 1955; and work has increased as the programme has developed.

The Commission announced recently some of the developments and achievements in various fields of research. In less familiar spheres work has included studies as diverse as the flow of air through pipes, leading to improvements in vacuum brake design; the stability of long-welded rails, with subsequent improvement in track standards; behaviour of axle bearings, leading to smoother riding; improvement of adhesion between steel wheel and rail; new forms of insulation for 25-kV. a.c. electrification; and automatic recording of freight wagon movements. Studies under operational research have embraced the impact of wagons during shunting; speedy transmission of information for traffic purposes; and fluctuations in traffic flow and use of regular-interval services to make more intensive use of rolling stock. In chemicals, research has included studies of the effects of diesel engine exhausts; analysis of oils to determine engine wear; and the development of new paint finishes which are more durable and reduce re-painting costs.

Three Technical Development Units established at Stoope-dale Works, (near Darlington), at Derby, and at Leyton (London), have enabled new ideas to be worked out, tested, and applied more quickly and widely than before. The Stoope-dale unit deals with design of rolling stock, containers, heating and ventilating apparatus, and goods handling equipment. Development of automatic warning apparatus has been centred upon the Leyton installation, and the Derby unit is concerned with the performance and efficiency of diesel locomotives.

Many research studies have been completed, others continue, and some have been developed to the point where practical application is under trial. An example of the latter is the work on wheel adhesion, concerned with new methods of distributing sand, and further examination of chemicals, notably silicates, to improve adhesion between wheel and rail. In the analysis of engine oil, the amount of contaminants in the oil is measured by a spectrograph, and correlated with known data about the engine. The ultimate objective is to be able to forecast for those responsible for engine maintenance the state of a particular engine at any time without dismantling.

As regards signalling, transistor techniques have been applied to the control and indicating elements of electric signalling systems, and several installations are working. Study is now being directed to applying these techniques to other aspects such as signal interlocking and track circuits

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IN September, 1958, the Eastern Region, British Railways, introduced a luxury service between Kings Cross and Sheffield Victoria via Retford, the first Pullman train in Britain to be hauled by diesel-electric locomotives. The motive power is normally an English Electric Type "4" 2,000-h.p. 1 Co-Co 1 diesel-electric locomotive. A six-car Pullman set has since run regularly, four times a day, between the two cities, in under 3 hr. for each trip. This is the fastest ever regular timing between Sheffield and London. The early morning and evening services have borne the name "Master Cutler," a reminder of one of Sheffield's principal industries. In less than two years the Pullman set has travelled more than a quarter-of-a-million miles, running 4,500 hr. in traffic at an average speed of nearly 60 m.p.h. In little more than a year-and-a-half this one train, providing four services a day, has carried 160,000 passengers and earned nearly £500,000 of revenue.

Technical Research on British Railways

MODERNISATION and re-equipment of British Railways are supported by an intensive research programme. This is, as it must be, always ahead of current development in constantly seeking out new ideas and techniques which may improve efficiency or lower costs. Research by individual railways in Britain dates back many years. The large volume of research work by the British Transport Commission and British Railways, which has a wide scope, was begun well in advance of implementation of the modernisation programme, which started in 1955; and work has increased as the programme has developed.

The Commission announced recently some of the developments and achievements in various fields of research. In less familiar spheres work has included studies as diverse as the flow of air through pipes, leading to improvements in vacuum brake design; the stability of long-welded rails, with subsequent improvement in track standards; behaviour of axle bearings, leading to smoother riding; improvement of adhesion between steel wheel and rail; new forms of insulation for 25-kV. a.c. electrification; and automatic recording of freight wagon movements. Studies under operational research have embraced the impact of wagons during shunting; speedy transmission of information for traffic purposes; and fluctuations in traffic flow and use of regular-interval services to make more intensive use of rolling stock. In chemicals, research has included studies of the effects of diesel engine exhausts; analysis of oils to determine engine wear; and the development of new paint finishes which are more durable and reduce re-painting costs.

Three Technical Development Units established at Stoope-dale Works, (near Darlington), at Derby, and at Leyton (London), have enabled new ideas to be worked out, tested, and applied more quickly and widely than before. The Stoope-dale unit deals with design of rolling stock, containers, heating and ventilating apparatus, and goods handling equipment. Development of automatic warning apparatus has been centred upon the Leyton installation, and the Derby unit is concerned with the performance and efficiency of diesel locomotives.

Many research studies have been completed, others continue, and some have been developed to the point where practical application is under trial. An example of the latter is the work on wheel adhesion, concerned with new methods of distributing sand, and further examination of chemicals, notably silicates, to improve adhesion between wheel and rail. In the analysis of engine oil, the amount of contaminants in the oil is measured by a spectrograph, and correlated with known data about the engine. The ultimate objective is to be able to forecast for those responsible for engine maintenance the state of a particular engine at any time without dismantling.

As regards signalling, transistor techniques have been applied to the control and indicating elements of electric signalling systems, and several installations are working. Study is now being directed to applying these techniques to other aspects such as signal interlocking and track circuits

which are primarily responsible for safety. They must first show they can surpass the record of reliability of existing track circuit relays which can operate for five years in a sealed box, and have a failure rate of only one in thousands of millions of operations.

A step in improvement of electric traction equipment is the development of resin-covered glass fibre cables to support the live parts of the overhead electric wires used in the 25-kV. a.c. system. This may result in very substantial savings in the cost of insulation and fittings. Some of these cables are already in use and it is hoped to extend their application.

Among other developments which are under examination are the adaptation of electronic computers for the speedier compiling of timetables; and the automatic identification and recording of wagon movements by an electronic apparatus which can scan identification plates fixed to wagons as they pass by and convey the information electrically to any selected point. Investigation is also to be made into the characteristics of a pair of rails used as a wave guide. This, a project in its very early stages, is really a form of radar that can "turn corners," and transmitters are under design.

Rhodesia Railways Rating Proposals

THE new rating proposals on the Rhodesia Railways, details of which have now been announced, are designed not to increase the level of general revenue of the Railway above that produced by the existing rates, inclusive of the present surcharges.

The Harragin Commission recommended the adoption of rates which would be on a regular basis throughout and this results in increases at some mileages and reductions at other mileages. The further recommendations that no traffic should be charged at less than direct costs, that lower rates should be granted for wagon-load quantities, and that Tariffs 11 to 14 should be confined to traffic in wagon-load quantities, have also resulted in increases for some commodities and decreases for other commodities. There has been a similar effect from the Commission's recommended rates for particular major traffics.

Distribution rates have been eliminated and many alterations in classification have been made, particularly for raw materials for industry, designed in part to offset to the fullest possible extent the adverse effect on industry of the abolition of distribution rates, and to mitigate the effect on the cost of living.

Livestock rates have been increased by an average of approximately 20 per cent, which is much less than the increase forecast in the Commission's report, but all concessionary rates for livestock have been withdrawn. Nevertheless, if they are returned within the period allowed, livestock recently railed from drought stricken areas to fresh pasturage and others that may be similarly moved up to June 30, 1960, will be able to obtain the benefit of the reduced return rate. Parcels charges have been slightly increased and regularised.

A comprehensive examination of passenger traffic is being made by the Railway Administration, but this has not yet been completed and no change in the present fares is therefore provided for in the proposals now published. The concessionary rates for motorcars accompanying passengers have been abolished.

It is impossible for the Railways to show the effect of the altered rates on particular commodities, and because of the alterations in the rates themselves any comparison of tariff classes could be misleading. It can be said that the altered rates on crude fuel oil or diesel and power paraffin are likely to result in an increase of approximately £420,000 a year while petrol will show a reduction of about £80,000. The opportunity has been taken of bringing the chargeable mileages into line with the physical mileages which have altered over the years because of deviations and because of the new joint rating point of Portuguese East Africa border with the Caminho de Ferro da Beira.

The existing regulations in the official tariff book provide for traffic in classes 5 to 10 to be conveyed, generally speaking, at owner's risk, but under the proposed arrangements the Rhodesia Railways will accept the risk of conveyance of local traffic in classes 1 to 10, with minor exceptions, and this arrangement will be extended to through bookings with the Caminho de Ferro da Beira and the Caminhos de Ferro de Mocimboa.

Under the proposed arrangements provision is made for

traffic from one consignor to more than one consignee to be combined for the purpose of securing the lower rates which apply to stipulated minimum quantities of certain goods, and the "in bulk" regulation which now requires that the contents of packages must contain goods which are not sub-divided into cartons, bottles, and so on, is amended to allow the lower rates to packages weighing not less than 50 lb. which contain goods which are sub-divided into cartons, bottles, canisters, tins or other small receptacles.

Central Transport Consultative Committee

THE report of the Central Transport Consultative Committee for Great Britain for the year ended December 31, 1959, published last week, is a temperately-worded document, constructive, and comprehensive in relation to passenger traffic. Much of its value is lost through delay in its appearance—it bears the date January 12—though several of the views expressed, as on cleanliness of trains, already have been communicated to those concerned. The report is signed by Sir Ronald Garrett, Chairman, and Mr. J. C. Chambers, Secretary, of the Committee.

In 1950-58 the estimated annual saving from line closures, the report shows, amounted to more than £2,500,000, and the figure given for last year is £695,458. About 1,850 miles of route are scheduled for closure, between 1959-63. In a reference to passengers' complaints, the committee comments that there may sometimes be a tendency in the British Transport Commission to plead the excuse of railway reconstruction for timekeeping failures. Unpunctuality is stated to cause the greatest number of complaints by passengers (nearly 25 per cent of the total number) and to be a subject which should be constantly examined.

On the cleanliness of stations, the report states that the attention of the committee was recently drawn to newspaper criticism of the conditions of the ladies' waiting rooms at four main-line termini in London. It is understood that these are now being put into the state in which they should have been kept at all times. The committee hopes that "the disquieting state of affairs disclosed by this very limited inquiry will have inspired the B.T.C. to investigate the whole field of station cleanliness and maintenance with a view to improving the present standard. It is easy to blame the public and say their habits are responsible for the litter . . . but the lead and the facilities must come from the B.T.C." The latter, it is urged, should seek to raise its own standards, and increase the facilities provided for the prevention of litter, both in trains and in stations, "which are at present often totally inadequate."

Various withdrawals of services are considered, and found justified. They include the suspension of the Bristol-Frome passenger train service in the Western and the closure of the Beccles-Yarmouth line in the Eastern Region, and the suspension of the Newhaven/Dieppe passenger steamer service in the winter months. As to the Buckingham-Banbury experimental service of single-unit diesel railcars, the committee points out that "the circumstances of the experiment were not ideal; the service connected at Buckingham with a steam push-and-pull train . . . from Bletchley; passengers travelling from Bletchley to Banbury had to change trains and endure delay, and the rigours of an open platform during the change; and a regular fixed interval headway was not operationally possible."

Nevertheless it was a most valuable experiment, showing the extent to which traffic could be recovered to rail against road competition on a completely uneconomic rural branch line, which had been operating at a loss of about £14,000 a year, by using a more attractive and economical motive unit than a steam push-and-pull train. After three years' operation, during which a few of the diesel car runs were extended from Buckingham through to Bletchley, the experiment has been an economic failure. Average receipts on the route had risen from the lamentable total of about £50 a month under steam, to a more heartening figure of £250-£300 a month with diesels. Operating costs fell under diesel operation by about £300 a month, but the gap between costs and receipts even during the most favourable month's operation—in August, 1957—showed a loss of over £400 a month, and though the annual loss was eventually reduced from about £14,000 a year to £4,700, the continued maintenance of a service over this almost unpopulated route clearly could not be justified. The Central

Committee, it is stated, hoped to receive a report from the Commission on the results of the experimental diesel rail buses on branch lines.

In September, 1959, the Central Committee was invited by the Ministry of Transport to express its views on the problem of rural bus services, to the committee which had been set up to consider this matter, and a memorandum setting out joint suggestions from the Central, Scottish, and Welsh Transport Users' Consultative Committees has been submitted.

Canadian National Railways in 1959

THE report for 1959 of the Canadian National Railways, of which Mr. Donald Gordon is Chairman, shows that increased revenues together with a tight control of operating expenses resulted in a modest improvement in the net financial result. Compared with 1958, operating revenues rose by \$35,300,000, while operating expenses rose by \$20,800,000. The resulting gain in net operating revenue was partly offset by a further increase of \$6,400,000 in fixed charges. The outcome was a deficit of \$43,600,000, a reduction of \$8,000,000 on 1958.

Freight revenues in 1959 were \$28,000,000 higher than in the previous year, and amounted to \$573,200,000. This increase was attributable to the interim freight rate increase authorised by the Board of Transport Commissioners on December 1, 1958, coupled with a slightly heavier volume of traffic. The average revenue per ton-mile increased from 1.554 cents in 1958 to 1.613 cents, largely as a result of the higher rates implemented during the year. Revenue ton-miles rose by 1.3 per cent in 1959. Tonnage increased from 79,500,000 tons in 1958 to 82,000,000 tons, and this more than offset a decline in the average length of haul from 441 to 432 miles.

The Board of Transport Commissioners, shortly after the interim freight rate increase of 17 per cent was authorised, required the railways to specify before April 10, 1959, the amount of supplementary relief sought. Accordingly, the railways on that date made formal application for a general rate increase of 12 per cent. In the meantime the Government had announced that no further general increases would be allowed for a period of one year as it intended to proceed with an inquiry into the railway rate structure and other matters affecting railway transportation. This announcement was followed by the appointment of a Royal Commission which is conducting hearings across Canada, receiving submissions from the railways and all interested parties. On July 8, 1959, Parliament passed the Freight Rates Reduction Act. Designed as a relief measure for shippers, the Act provided a fund of \$20,000,000 to permit a reduction in class rates and commodity rates, other than competitive rates, on Canadian railways for a period of one year. In compliance with the Act, the Board of Transport Commissioners ordered the substitution of an increase of 10 per cent for the permissive increase of 17 per cent.

Passenger revenues decreased from \$41,500,000 in 1958 to \$40,200,000 in 1959. This represents a drop of 3.2 per cent, which compares with a decrease of 11.4 per cent between 1957 and 1958. The number of passengers carried remained constant at 12,700,000, but a small increase in average length of journey caused the number of passenger miles to rise slightly. The effect of this increase on revenues was more than offset by a drop in the average revenue per passenger-mile from 3.27 cents to 3.16 cents. The decline in revenue per passenger-mile was the combined result of fare reductions and a shift in demand to coach class travel.

The following are some of the principal results for 1958 and 1959:—

	1958	1959
Passenger train-miles	23,075,444	22,394,255
Goods train-miles	37,507,065	37,754,181
Freight revenue	\$ 560,265,237	\$ 589,567,242
Passenger revenue	50,493,785	49,954,770
Total operating revenue	704,497,410	740,165,041
Operating expenditure	700,021,499	720,822,338
Net operating revenue	4,925,911	19,342,703
Taxes, rent, etc.	19,190,366	21,029,922
Interest on public bonds	33,872,693	38,691,827
Government interest	11,097,583	12,533,180
Surplus (+) or deficit (—)	—51,591,424	—43,588,290

There was a rapid expansion of commercial communications facilities as the C.N.R. attempted to keep abreast of the continuing growth in demand. The result was a new record in revenues, which rose 13.5 per cent to \$27,200,000. Construction

work included the addition of some 22,000 miles of carrier telephone channels and 125,000 miles of carrier telegraph channels. A substantial portion of the new telegraph channels was assigned to the fast-growing Telex network, which was extended to 12 additional cities. By the end of the year, the number of Telex subscribers had grown to 2,800, an increase of 900 over 1958.

The conversion of the system to complete diesel traction progressed rapidly during 1959, and by the end of the year steam locomotives had been replaced completely except on the Manitoba and Saskatchewan Districts and on the Detroit Division of the Grand Trunk Western. The conversion to diesel traction of the entire system will be accomplished during 1960. With the addition of 290 units in 1959, diesel locomotives were handling by the end of the year 99 per cent of all freight gross ton-miles, 99 per cent of all yard engine hours, and 96 per cent of all passenger car-miles.

Running repair shops at Edmonton and Senneterre were brought into operation, and the foundation work was completed for a similar shop to serve the new hump yard being built at Moncton. A running repair shop will also be established at the Symington humps yard under construction in Winnipeg.

The eastern section of the Chibougamau branch line, from St. Felicien to Cache Lake, Quebec, a distance of 133 miles, was officially opened to traffic in October. The western section of this line, from Beattyville to Chibougamau, a distance of 161 miles, was completed in 1957. The line was constructed to open up undeveloped resources. On the 52-mile line from Optic Lake, to Chisel Lake, Manitoba, track laying and 75 per cent of the first ballast lift were completed. The new line, which will serve the Hudson Bay Mining & Smelting Company development at Chisel Lake, is expected to be ready for operation in 1960. A total of 334 industrial spurs and track extensions, representing 80 miles of new trackage, were built during the year, and 415 new industries were established on Canadian National lines.

Eastern and N.E. Regions Summer Timetable

THE summer timetable of the Eastern Region shows a few detail alterations in train times, but no major alterations. There are the usual changes in starting times of certain down morning expresses, the 9 a.m. Newcastle to 9.40 a.m. and the 9.20 a.m. Leeds and Bradford to 9 a.m. (8.50 a.m. last summer), the 12.20 p.m. Newcastle (the "Northumbrian") to 12.30 p.m., and the 3 p.m. Newcastle to 3.10 p.m.; also the 8.20 a.m. to Hull is moved to 8.25 a.m. in order to follow the new Anglo-Scottish "Car-Carrier," and the 1.20 p.m. Leeds and Bradford to 1.25 p.m.

The "Car-Carrier" will be booked to leave the Holloway Car Loading Bay, Kings Cross, at 7.55 a.m. and to reach Newcastle at 1.10 p.m. and Edinburgh at 3.34 p.m., except on Saturdays, when the start will be at 7.20 a.m. In the reverse direction departure from Edinburgh will be at 11.50 a.m. and from Newcastle at 3.6 p.m.; the arrival at Holloway Loading Bay will be at 8.30 p.m., except on Saturdays, when the start will be at 11.15 a.m. and the arrival at 7.45 p.m. This will be a restaurant car train in each direction.

The "Elizabethan," non-stop over the 392.9 miles between Kings Cross and Edinburgh in each direction in 6 hr. 5 min., this summer is to run, Saturdays excepted, throughout the three months' currency of the timetable; in all probability this is the last year that it will continue to be steam-operated. The 11.50 a.m. "Queen of Scots" Pullman is to reach Newcastle 9 min. earlier, at 5.33 p.m., and to be 5 min. earlier into Edinburgh and Glasgow (7.50 and 8.55 p.m.).

For the summer reductions are being made in the recovery margins which have had to be allowed on Sundays in the winter timetable to cover time lost by diversions due to engineering work. The accelerations range from 10 min. between Kings Cross and both Leeds and Bradford to as much as 33 min. in the case of the 9.45 a.m. "Harrogate Sunday Pullman" from Kings Cross, due Harrogate at 2.18 instead of 2.51 p.m. The up Pullman will leave Harrogate at 3.40 instead of 3.50 p.m. and reach Kings Cross at 8.20 instead of 9.8 p.m., an acceleration of 38 min.; similarly the 12.40 p.m. from Edinburgh Waverley will reach London 20 min. earlier, at 9.7 p.m.

On the Colchester main line of the Great Eastern Line, there

will be further adjustments in timings because of electrification work between Chelmsford and Colchester. While the nominally 2-hr. trains between Liverpool Street and Norwich will still be booked in 2 hr. 10 min. each way, including the Ipswich stop, the intermediate trains with seven stops, at 30 min. past the hr. down and 45 min. past up, will almost all be scheduled to make the run in 2 hr. 41 min. down and 2½ hr. up, with certain adjustments in times between intermediate stops in each direction.

One or two trains will, however, be slightly accelerated; the 6.45 p.m. mail from Norwich will reach Liverpool Street 5 min. earlier, at 9.14 p.m., and the 4.35 a.m. down will be 13 min. earlier into Norwich, at 8.13 a.m.

On the Cambridge line during the height of the summer season there will be an additional daily express from Liverpool Street at 11.20 a.m. to Hunstanton, calling only at Bishop's Stortford, Cambridge, King's Lynn, and Heacham, and arriving at 2.18 p.m.; return will be at 7.10 p.m. and the arrival in London at 10.8 p.m. Other new trains will run from Ilford at 10.24 a.m. to Clacton-on-Sea and at 6.22 and 6.37 p.m. from Clacton to Liverpool Street. Among new cross-country services on Saturdays will be a 10.55 a.m. from Yarmouth to Birmingham and a 7 a.m. from Cleethorpes to Sidmouth and Exmouth.

In the North Midlands the improved North Eastern Region through diesel multiple-unit service between Leeds City, Wakefield, Barnsley, and Sheffield, introduced at the beginning of April, now appears in the timetable book. Before its introduction there were hourly trains between Leeds and Barnsley Exchange and Barnsley Court House and Sheffield. The new link between the two lines concerned has made possible the closing of Court House, and the working through of the diesels, with a reduction varying from 7 to 15 min. in most of the Leeds-Sheffield times. Departures from Sheffield are at 5 min. to each hr. and from Leeds City at 30 min. past the hr.

The recently introduced St. Pancras-Sheffield-Halifax service takes this route (instead of the Royston-Thornhill route of former years), and so for the first time provides Barnsley with a through coach to London at 9.54 a.m. and from St. Pancras at 5.5 p.m., with timings of 4 hr. 6 min. up and 4 hr. down.

On the London, Tilbury & Southend Line completion of the pre-electrification work at Barking and elsewhere has made possible an acceleration of the entire service between Fenchurch Street, Southend-on-Sea and Shoeburyness, by amounts generally varying from 3 to 7 min. per train and an average of about 5 min. during the peak hours, which will be very welcome to commuters. The fastest train of the day, the 4 p.m. from Fenchurch Street, will put Southend within 49 min. of London, including the Westcliff stop. Fenchurch Street departures will remain unchanged, but most of the up trains will leave their starting points 5 min. later than now.

Slow Expansion of Freight Traffic Volume

(By a correspondent)

IN four weeks to March 27 our railways originated 20,199,000 tons of freight train traffic. That was an increase of over a million tons, or 5.3 per cent, on 1959 and brought the aggregate tonnage for 12 weeks of this year to 61,516,000, making what looks like a satisfactory advance of 3,589,000 tons, or 6.2 per cent. The first 12 weeks of 1959 were, however, a barren period, 8 per cent behind the lean year 1958, which in turn produced 6,500,000, or 9 per cent, fewer tons than were put on rail in the good year 1957. The partial revival of freight business in 1960 is far short of the upsurge needed to improve the financial position of the railways.

Ton mile figures confirm the opinion that our railways are not securing a sufficient volume of traffic, though industrial output is at a high level. In 12 weeks they worked 4,591 million ton miles, 190 million or 4 per cent more than in 1959, but 124 million, or 2.6 per cent, less than in 1958. In their last busy year, 1957, they recorded 5,411 million ton miles; so far in 1960 freight movement has been 15 per cent lower in volume.

A welcome feature of the Regional results was the resurgence of the North Eastern. Over 12 weeks it increased its traffic by 1,409,000 tons, or 11 per cent, and produced 42,881,000

more ton miles, an advance of 7.5 per cent. In that period, 10,275,000 tons of coal and coke were declared, 27 per cent of the aggregate all-line forwardings, but the North Eastern worked only 13.5 per cent of all coal ton miles, because many of its hauls were short.

The Eastern Region also raised its traffic by 11 per cent to 11,306,000 tons, including 6,815,000 tons of coal and coke—10.7 per cent of the all-line total and an increase of 555,000 tons, or 9 per cent, on 1959. The Eastern, however, worked 38,560,000 fewer coal ton miles, a decrease of 8 per cent, but moved 21 per cent of the all-line total.

Mineral traffic in the London Midland Region, measured by either tons or ton miles, was over one-third of all carryings. In 12 weeks 694,000, or 17 per cent, more tons were put on rail and 64,646,000 extra mineral ton miles were worked, an increase of nearly a fifth. Coal class tonnage dropped by 570,000, or 5 per cent, and ton miles by 14,163,000, about 2 per cent. *Transport Statistics* shows an increase of 113,000 tons, or 4.4 per cent, in merchandise and livestock traffic as producing 48,376,000, or over 12 per cent, more ton miles. This result clashes with the general trend in other Regions. With an increase of 167,000 tons, or 9 per cent, the Western worked only 6 per cent additional ton miles. The Eastern and North Eastern Regions, with 15 per cent increases in tonnage, worked rather less than 10 and 7 per cent more ton miles, respectively. The contrast between figures calls for an explanation, for the London Midland is the only heavy line to have a merchandise load at starting point of less than four tons.

In the first 12 weeks of 1960 the railways worked 29,761,000 freight train miles, 456,000 more than a year ago. Diesel train miles rose by 1,099,000 to 1,488,000 and electric train miles by 59,000 to 459,000, while steam miles were down 701,000, or 2.5 per cent. The Eastern was ahead of the other Regions in adopting diesel motive power and worked about 59 per cent of all diesel train miles. The Scottish Region came next with 201,000 freight train miles, or nearly 13 per cent of the total. The May number of *Diesel Railway Traction* has an informative article on the replacement of steam by diesel power in the Great Eastern Section, Eastern Region, and the system in force there for making effective and economical use of the fleet of new locomotives.

For the first time the average speed of diesel freight trains reached 10 miles an hour by the month of March, while the speed of electric freight trains slipped back 5 per cent to nine miles an hour, and that of steam trains 2 per cent, to 8.9 miles an hour. Diesels were used for fast freight trains except in the London Midland and Western Regions, which recorded slow motion at about seven miles an hour. With a small diesel train, mileage of 98,000, the North Eastern achieved a speed of 19 miles an hour, while the Eastern and Scottish recorded just over 10 miles an hour. In Scotland, steam trains averaged 10.5 miles an hour, beating its own diesel trains and all steam trains south of the Border.

This year opened with an average train load of 154 tons, four tons over 1959. The London Midland improved its load to 172 tons, half-a-ton above the Eastern load, but produced only 1,198 ton miles in a train engine hour, 60 below the Eastern output and 128 above the Western figure of 1,070. There is room for an all round improvement in these statistics, which are below the 1957 level.

The rolling stock and repair position at March 27 was far from satisfactory. Of 13,459 steam locomotives, 2,661, or nearly a fifth, were under repair. Diesel mechanical and hydraulic locomotives numbered 407, with 58—or 14 per cent—out of action. The state of the diesel electric fleet, numbering 1,538, was worse. Eight locomotives in good order were stored and 234, or 15 per cent of 1,530 in traffic, were unserviceable. Of 91 electric locomotives, 17 of which were installed after March last year, 10 were under repair. Out of the entire stock of 15,487 locomotives in traffic, 2,963—or 19 per cent—were unfit for work. A year ago this under repair percentage was 16!

The percentage of unserviceable freight wagons has risen from 5.1 in 1959 to 6.1. On March 27 the railways had a stock of 964,650 wagons, with 58,878 under repair. The number available for traffic was 905,772, compared with 956,950 a year ago. The loss of over 51,000 wagons is serious at a time when the railways need every ton of goods they can secure.

THE SCRAP HEAP

Rooftop Journey through Tunnel

A railway policeman told Sheffield magistrates that a man jumped from a railway bridge on to the brake van of a passing goods train and clung to a hot stove pipe on the roof while the train passed through the 3½-mile Totley Tunnel. The man was fined £2 after pleading guilty by letter to being an unauthorised traveller on the goods brake van. The guard, the police constable reported, saw a pair of legs dangling from the roof of the brake van, and eventually a man climbed down to the veranda.—*From "The Guardian."*

Museum Piece

Increasing use of diesel locomotives goes hand-in-hand with modernisation plans for British Railways, but in America they are just about to place their first diesel in a museum. The "Pioneer Zephyr," as the Burlington Railroad's first diesel-powered streamlined train was called, began service between Lincoln and Omaha, Nebraska, and St. Joseph and Kansas City, Missouri, in November, 1934. Having travelled more than 3,200,000 miles, or six-and-a-half round trips to the moon, in 25 years, the train is now to be placed in the Museum of Science & Industry in Chicago.—*From "The Star."*

The Doric Arch at Euston

If the Euston Arch were destroyed, that would be the worst loss to the Georgian style in London architecture since most of Soane's Bank of England fell shortly before the war. Not only is Philip Hardwick's arch an excellent piece of architecture, not only is it . . . the most powerful symbol of the coming railway age, but it would also afford a splendid challenge to any imaginative architect entrusted with the reconstruction of Euston Station. The Romans, in building the most beautiful railway station there is, could make a feature of a fragment of Roman wall inside it. Could not an English architect enhance the symbolic character of the old arch by making it a monument inside his new building?—*Professor Nikolaus Pevsner, in a letter to "The Times."*

Railway Speakers in Demand

With a vast programme of railway modernisation work in hand, and a success story to tell, considerable interest has been shown by clubs, associations and societies in facilities which the Eastern Region of British Railways provides for talks and addresses on railway matters. For many years it has been customary for railway officers to speak at Rotaries, Round Table meetings and similar gatherings. Because of the importance attached to informing everyone interested of developments on railways and progress being made, the Eastern Region decided two years ago to organise lecturing facilities on a larger scale. Since then well over 300 talks have been given to a big variety

of different clubs and groups, and by the end of this year it is expected that the total will top the 400 mark. Traffic managers have given many of the talks and other speakers have been provided from all levels in the Eastern Region organisation, from general management to stationmaster.

Tuant Trainspotter

A schoolboy, aged 14, spends all his pocket-money and every spare moment trainspotting. Now he has been missing from his home in Woodbridge. In his pocket when he disappeared were two books on trainspotting and £5 he was saving for his summer holidays. He was last seen by a school friend at Woodbridge Station jotting down train numbers. Since then no one has seen the schoolboy with the craze for trains. He hasn't been home and he hasn't been to school. A police spokesman said: "He is probably spending his time quite happily on some remote station. This isn't the first time he has been reported missing from home and we have found him train-spotting. He has done it twice before, and was once found on Liverpool Street Station."—*From the "Daily Mail."*

Bright Ideas from a Bus

Delegates to the Advertising Association Conference and visitors to the Advertising Services Exhibition at Harrogate were shown a bus with the slogan "The Side's Lit Up." This is an experiment in illuminated bus sides carried out by the West Yorkshire Road Car Co. Ltd. on behalf of British Transport Advertising, the commercial advertising service of the British Transport Commission. Nine 15-W. fluorescent tubes lit from the 24-V. bus battery through transistors are used for maximum lighting

effect. Either printed posters or painted display applied to the back of the translucent plastic panel are shown to be equally successful.

Complete with Windows?

On the occasion of the annual senior staff and chargehand dinner of Beckett, Laycock & Watkinson Limited, makers of railway vehicle and other windows, a presentation was made to the Chairman of the company, Mr. J. E. Beckett, by the Training Centre in the form of a detailed scale model of the firm's Acton Lane Works, showing the recently completed extension. Mr. Keith J. Bodimeade, aged 18, who made the model, also scaled all architects drawings to 1/16 in. to 1 ft., so ensuring complete accuracy; he is now in his second year at the Beclawat Training Centre. The model will be housed permanently in the new showroom and will probably be on show at the Commercial Vehicle Exhibition in London in September.

Good Living on the Midland

Strange to say, the most elaborate meal which Mr. Pascoe describes was served, not in a restaurant, but in a dining-car of the Midland Railway Company. The traveller was Mme. Christine Nilsson-Rouzaud, the singer, en route from Liverpool to London, and the meal which she sat down to consisted of: Huitres au Naturel, Tortue Claire, Filet de Soles au Vin Blanc, Tournedos Châteaubriand, Cailles en Belle-vue, Asperges en Blanche, Pêches à la Condé, Oranges, and Nuts Divers (sic). This was washed down with Haut Sauternes, Château Léoville, Pommery Greno Sec, Café and Eaux Minérales.—*From an article "Guide to High Life 70 Years Ago," by Michell Raper in "Country Life."*



Bus shown at the Advertising Services Exhibition at Harrogate

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Ahmedabad Yard Remodelling

The remodelling of the broad-gauge railway yard at Ahmedabad including the construction of a new station building, is likely to be taken in hand during the Third Plan period. A scheme for remodelling both the broad-gauge and metre-gauge yards at Ahmedabad was prepared three years ago, but because of the high cost involved, it was decided that the project should be executed in two stages. Stage one covers the metre-gauge yard only, and work on this is already in progress.

New Standard Passenger Coach

A new first class broad-gauge passenger coach with 24 berths has been accepted by the Railway Board as the standard for the future. The standardised coach will be of the integral type and will have two coupés and five four-berth compartments. The traditional wooden type coach has 22 berths and is heavier than the new integral type coach. A similar standardised coach in the metre-gauge sections has not yet been finalised.

Punctuality Performance on N.E. Railway

Punctuality performance of passenger trains running on the various sections of the North Eastern Railway has reached a level of over 90 per cent during recent months. This was stated by Mr. S. S. Ramasubban, General Manager of the North Eastern Railway, at a meeting of the Parliamentary Informal Consultative Committee for the N.E. Railway, held in New Delhi recently under the chairmanship of the Railway Minister, Mr. Jagjivan Ram.

Mr. Ramasubban explained the action taken by his Railway on the suggestions made by the members at the committee's last meeting held in December, 1959. These related, among other things, to the provision of more amenities at certain stations, including Ramnagar and Muzzaffarpur, introduction of more halts, opening of more booking offices, better catering arrangements at certain stations, re-adjustment of train timings, recruitment of class IV staff from the local people and introduction of new trains on certain sections of the Railway.

NEW ZEALAND

Supply of Timber Sleepers

Acceptance of tenders for the supply of 90,000 pinus radiata railway sleepers was announced recently by the Minister of Railways. Each year the railways use approximately 450,000 sleepers, most of which for many years had been imported from New South Wales and Western Australia. Recently it had become increasingly difficult to obtain hardwood sleepers of adequate durability at an acceptable price. The availability of home-grown pinus radiata sleepers therefore came at an appropriate time.

Between 1948 and 1958 some 3,000 treated pinus radiata sleepers were placed in the track for experimental purposes. Results of these trials, together with information on similar trials conducted in Australia, indicated that this type of timber, when suitably treated, would give good service except in sharply curved track or in places where there was exceptionally heavy traffic. Each sleeper is 7 ft. long, 8 in. wide, and 6 in. thick. Eighty thousand of the sleepers are to be supplied by New Zealand Forest Products Limited, of Kinleith and Pinedale, and 10,000 will be supplied by the Valentine Sawmilling Co. Ltd., Inglewood.

which was opened in January, 1916, was hampered by considerable irruptions of water, and since then it has been necessary to carry out repairs in concrete of various sections to prevent water from seeping in.

In recent years one section, under pressure from the mountain above, has contracted to such an extent as to reduce the height of the electric conductor line below the standard and minimum above rail. Here it has been necessary to demolish in part the original structure and rebuild in concrete, an operation which was carried through without interruption to traffic.

UNITED STATES

Passenger Business

Not all the Class I railways in the United States are showing a diminution in their passenger patronage. The Chicago Burlington & Quincy Railroad has shown increases in four out of five successive years; passenger receipts were 2.2 per cent higher in 1959 than in 1958. The Texas & Pacific Railroad had an increase of 6 per cent in passenger business over the same period. While passenger coach construction in the U.S.A., apart from suburban coaches, has been almost at a standstill for the past year or so, the Union Pacific now has on order new reclining-chair leg-rest coaches for its long-distance services.

Railway Safety

During 1959 a notable record was achieved by the railways of the United States in that only one passenger lost his life as the result of an accident while travelling by train; the total number of passengers carried during the year was approximately 352 million, and the distance they covered 22,000 million miles. This works out at an average fatal casualty rate of 0.05 per 100 million passenger-miles; it compares with 0.65 per million passenger-miles in American air transport, which accounted for 198 deaths during the same period.

SPAIN

Extension of Electrification

Work is to begin shortly on electrification at 3,000 V. d.c. of the section from Santa Cruz de Mudela to Alcazar de San Juan. Conversion of the Ponferrada-Monforte line, also at 3,000 V., is making good progress.

SWITZERLAND

Hauenstein Tunnel Repairs

Extensive repairs have recently been completed to the Lower Hauenstein Tunnel, on the main line between Basle and Olten, which with its daily average passage of nearly 100,000 tons of traffic is one of the busiest lines in Switzerland. The boring of the 5 miles of this tunnel,

LUXEMBOURG

Electrification Extension

Electric working is to begin shortly between Mont St. Martin, near the French frontier, and Wasserbillig, on the Luxembourg/German frontier station. The system used is 25 kV., 50 cycles.

BELGIUM

Improving Links with S.N.C.F.

To link up with the main line of the French National Railways in course of electrification from (Paris) Creil to Aulnoye, the S.N.C.B. is considering electrification from Brussels via Mons to Quévy, on the Franco-Belgian frontier, near Aulnoye. No other major electrification scheme is under examination for the time being. The French lines converging on Aulnoye are, or will be, electrified at 25 kV., 50 cycles. The Belgian lines converted hitherto are on the 3,000—V. d.c. system.

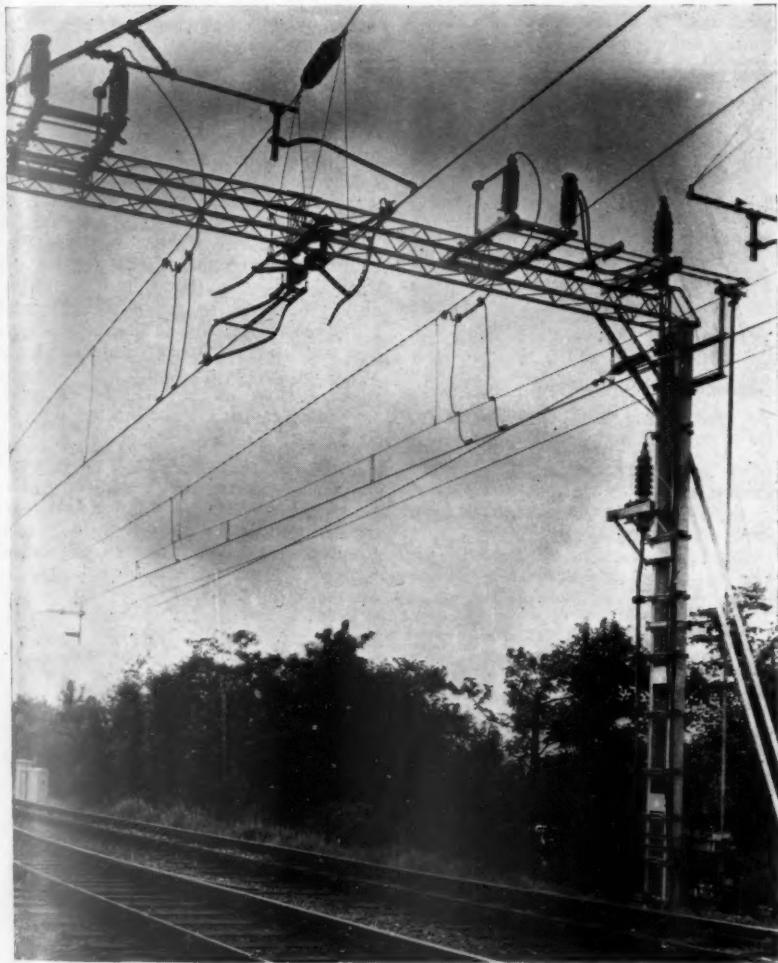
HUNGARY

New Budapest-Berlin Service

The Hungarian State Railways is introducing a new express train service, the "Hungaria," between Budapest and Berlin which will take five hr. less than the present Balt-Orient Express. The new train goes via Prague. Mr. József Németh, Managing Director of the State Railways, has stated that a number of new fast services were also being introduced on national routes. More trains are to be used on the services between Budapest and several popular holiday spots around Lake Balaton, and travelling time on these routes will be cut by up to 25 min. Times of slow trains from the Western frontier station at Hegyeshalom to Budapest will be cut by 51 min. by omitting stops at a number of less important stations. To cope with an estimated increase of 10,000,000 passengers this year, the State Railways is bringing into service 110 new passenger coaches, and next year 130 more are to be added to the rolling stock. Diesel engine stock is also increasing. By 1965 the Railways will be acquiring 30 diesel engines annually.

Main-line Electrification in the London Midland Region

Overhead line construction and power distribution arrangements for 50-cycle operation



Switching structure, showing isolating switches mounted on the structure bridge and termination of feeder cables from track sectioning cabin

A DESCRIPTION of the civil engineering work necessitated by the electrification of British Railways, London Midland Region, main line at 25 kV. 50 cycles a.c. was published in our issue of March 25. In the planning stage there is a considerable amount of co-ordination between the Technical Departments and with Traffic Department. During a reconnaissance of the site, the lines to be electrified are defined in detail, and discussions are held on station reconstruction, permanent way alterations, and any track work not to be retained. A note is made of low bridges, signalling requirements, and so on.

Planning of Work

To proceed with the planning of the work the following preliminary information is prepared using a single-line diagram of the route as a basis. This includes 2 ch. plans of the route, larger scale plans showing track work alterations (40 ft.

to the in.), and track work alterations in complicated areas at 20 ft. or 8 ft. to the in. Existing large-scale track plans are made available where no alterations take place. A diagram of the maximum speed of the route and a sectioning diagram are agreed with the Director of Traffic Services, and a schedule of bridges is prepared showing clearances and information on the method of reconstruction. More detailed bridge reconstruction drawings are needed for defining the points of attachment under the bridge. Also required is a longitudinal section showing rail levels throughout the route. On the basis of the above information a preliminary overhead layout plan showing proposed position of structures and wiring is produced.

To agree the location of structures, clearances to be provided, and removal of obstructions, a walkout inspection party is formed. A final overhead layout plan is then prepared incorporating

modifications agreed during the walkout. Detailed design work on overhead structures can now proceed, and for this purpose data sheets and loading diagrams showing the type of structure proposed with clearances and applied loads are prepared. The electrical switching arrangements based on the sectioning diagram are produced as special drawings at the same time.

The type of steelwork and foundation can be allocated at this stage. Where no suitable design exists, further development work is carried out and a complete cross section produced with foundation and steelwork designs.

Overhead Line Equipment

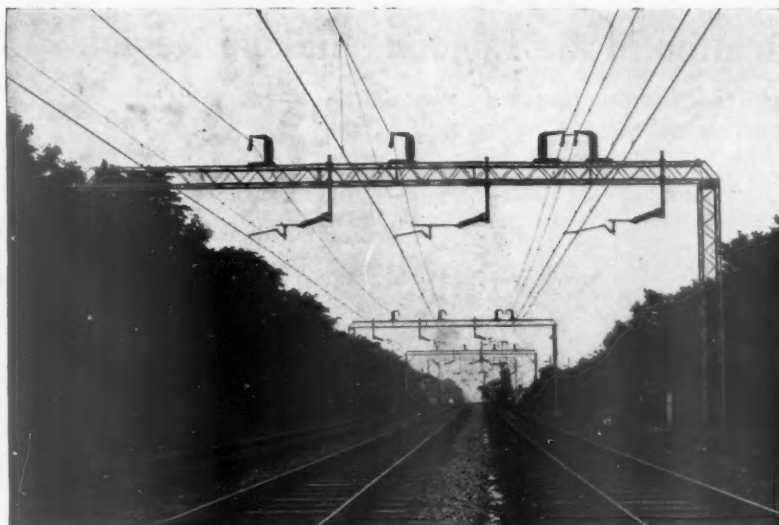
Following the allocation of steelwork, mast erection can proceed with the aid of mechanical equipment. On lines where the speed restriction is 60 m.p.h. or less, simple catenary is used. Where the speed restriction is over 60 m.p.h. compound catenary construction consisting of catenary, auxiliary, and contact wire is used. On normal open track B.F.B. (Broad Flanged Beam) masts are used. At overlap spans where two equipments have to be supported, double channel masts are used. These are made up of two lengths of channel, with spacers welded between.

At the mid point of tension lengths, where there are more than two tracks, and in station areas, portal structures are used. These may have B.F.B., double-channel or four-angle welded rod masts, and booms, dependent upon the loading. At tensioning points, balance weight anchor masts are used. These masts are specially designed to withstand the along-track loading of the equipment. Masts are either planted in the foundation to a depth of at least 5 ft. or are secured by bolts set in the foundation. In the case of fixed tension equipment in complicated areas turn-buckle arrangements are installed for adjusting the necessary tension. Where because of ground conditions, it is desired to eliminate all side thrust on the foundations, portal structures with pin-jointed masts are used.

Protection of Steelwork

All the steelwork is galvanised at 3 oz. per sq. ft. In addition it is necessary in areas subject to heavy pollution from steam traffic or other sources to paint affected areas of booms. This painting work will not usually have to be continued as a maintenance commitment after the routes have been converted to electric traction and steam services withdrawn.

In the case of single-track cantilever construction the supporting insulators are positioned adjacent to the masts and the whole of the cantilever assembly is alive to line voltage. On the initial stages of the electrification scheme these cantilever assemblies are of iron ferrous



Multi-track balance weight overhead equipment on the Styal Line, showing the experimental use of all three forms of construction; compound catenary, left, stitched catenary, centre, and simple catenary, right

construction, but development work is in hand on the ferrous assemblies to effect future economies.

Overlap spans are located where a break in the overhead equipment is required for switching purposes or at the ends of tension lengths in the overhead line equipment. On weight tensioned equipment, location of these spans is dictated by the maximum length of equipment between the mid point anchor and the overlap. This length varies with the track curvature and the maximum allowed is 2,880 ft. on tangent track, thus spacing the overlaps at 5,760 ft. maximum. On fixed tensioned equipment the spacing of the overlaps is generally greater.

At a switching overlap the two equipments which terminate at the overlap are insulated from each other. At overlaps where there is no switching the two equipments are linked by a jumper and are electrically common. Insulation is provided at certain non-switched overlaps, which is bridged out by a jumper connection. Neutral sections are installed where there is a change of voltage, at feeder stations, at the normal limit of feed from a feeder station, and at a number of other locations associated with emergency feeding conditions.

Neutral Section Construction

There are two types of construction for neutral sections, the carrier wire type and the section insulation type which gives a shorter "dead" section of 120 ft. Neutral sections are switched such that the "dead" sections can be made "live" at the voltage and phase of the section ahead in the event of a train coming to stop with its pantograph on the dead section.

Development work is in hand with P.T.F.E. coated fibre-glass material for providing section insulation, one advantage of which would be to reduce the length of dead sections within a neutral section thus allowing much more flexibility in the choice of site for neutral

sections. This choice of site depends on signal positions, track grade, and speed of trains.

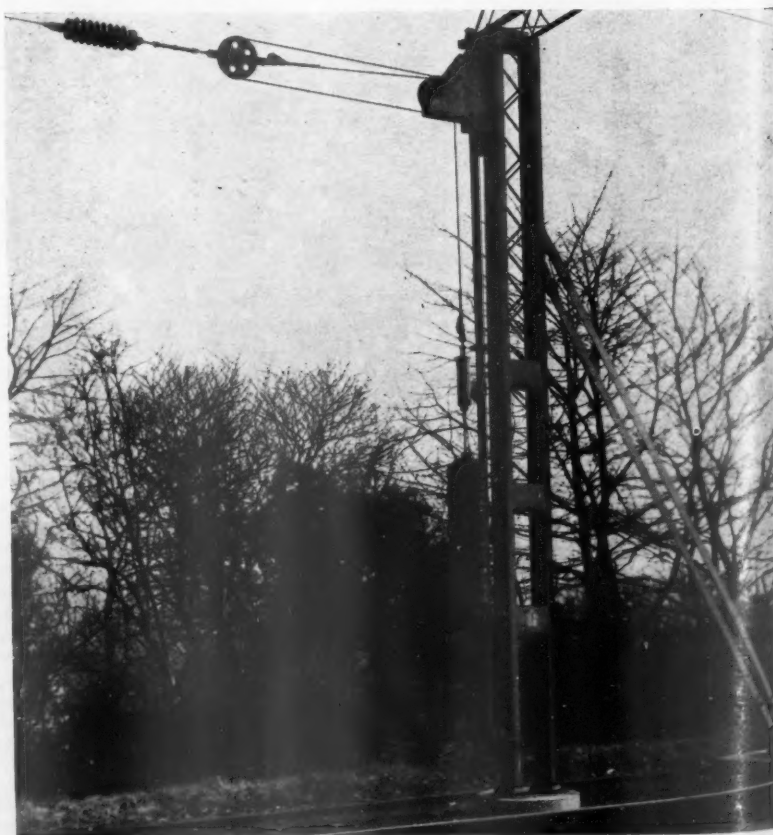
In the initial stages of the work the switches were mounted on the boom over the track concerned, but on later stages they are generally mounted at the head of masts carrying the operating gear to simplify the cabling arrangements.

Power supplies will be taken at 25 kV. single phase, 50 cycles from the Central Electricity Generating Board network through duplicate feeders at Heaton Norris, Crewe, Speke, Stafford, Tamworth, Rugby, Wolverton, Hemel Hempstead, Willesden, Washwood Heath, Willenhall, and Kidsgrove. The switchgear controlling the incoming supplies will be incorporated in the railway switchboards. The normal spacing of feeder stations is 25 miles and the limit of feed in each direction is about half this distance depending on loading conditions.

The system is so designed that it can continue to operate in the event of failure of any one supply point, and the 25 kV. sections of the overhead line equipment are capable of carrying the through power required in this eventuality. The track is sectioned electrically at the feeder stations, sub-feeder stations, and track section cabins; separate feeds are taken to the up and down tracks in each direction. There will be 80 track sectioning cabins installed in the scheme.

Reduced Voltage Areas

The whole of the route is to be electrified at 25 kV. with the exception of the Birmingham area and the inner London area which will be energised at 6.25 kV. There will be some 50 route miles of line energised at the lower voltage. The sub-feeder stations within the London and Birmingham 6.25-kV. area will be inter-connected by 25-kV.



Anchor mast showing balance weight termination of overhead equipment

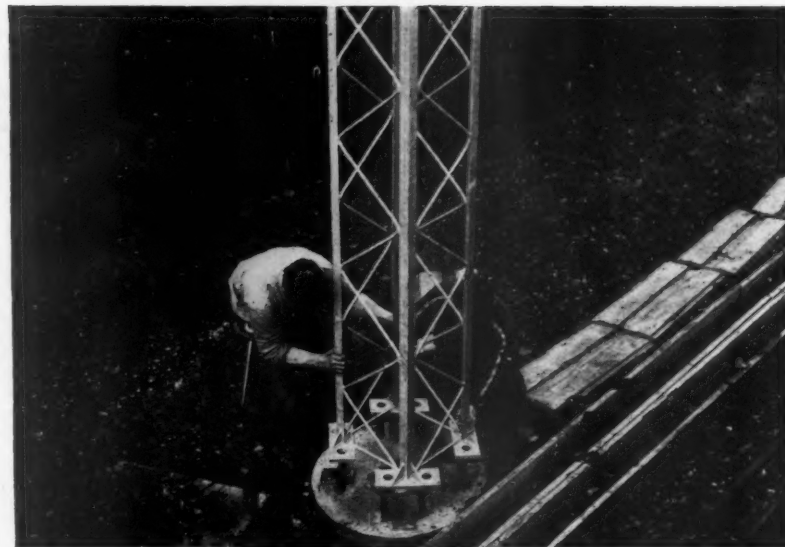
concentric cable with step-down transformers at the sub-feeder stations.

Single-pole single-phase oil circuit breakers control the incoming and outgoing supplies at feeder and sub-feeder stations. These are solenoid operated. The oil circuit breakers controlling the tracks are equipped with distance impedance protection. The voltage reference for the latter is obtained by V.Ts. on each switchboard.

At each switching station a 415-V. three-phase supply is taken from the Supply Authorities' local network for heating, lighting, and auxiliary purposes, and to afford a signalling supply at 650 V. single-phase through a 415/650-V. single-phase transformer.

Alternative Supply Arrangements

Because of the vital importance of signalling supplies a 25-kV./650-V. or 6.25-kV./650-V. voltage-regulated transformer is installed at stations or cabins where a signalling supply is given to provide an alternative supply in the event of a failure in the main supply. The changeover of supply is automatic in the event of a failure of either supply. The 25-kV./650-V. and 6.25-kV./650-V. transformers are red through a fuse unit on the appropriate switchboard. Similar



Welded rod pipe mast being positioned on bolted base type foundation

duplicate supplies are provided for air compressors and non-standard frequency supplies for signalling purposes.

A 110-V. switch-closing battery is

installed at each switching station together with a 50-V. battery for supervisory equipment at all stations and cabins having direct supervisory control.

There are to be four control areas centred on control rooms at Crewe, Rugby, Birmingham, and Willesden. All feeder stations, sub-feeder stations and track-sectioning cabins will be unattended and the equipment will be controlled remotely from the appropriate control room.

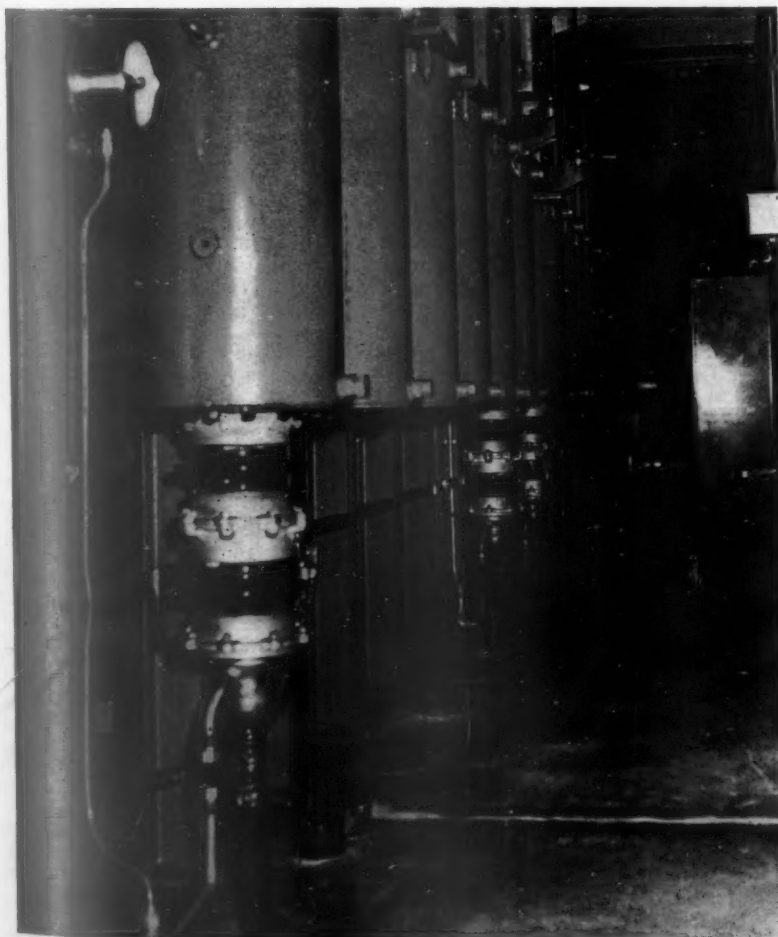
A mimic diagram located in the control room will display each oil-circuit breaker and overhead line motorised switch position; a key will enable each switch to be operated and its position continuously recorded. In addition, alarm indications, meter readings, and telephone facilities are available.

Return Current Leakage

To minimise leakage of traction return current via the earth, a booster transformer and return conductor system is to be installed. On the Crewe-Manchester section a booster transformer rail return system has been installed, but it is intended to use a return conductor system on all other sections where it is found necessary to take special precautions because of the proximity of G.P.O. circuits. The booster transformers under the return conductor system are spaced at intervals of two miles.

The work is being carried out to the requirements of Mr. A. E. Robson, Chief Mechanical & Electrical Engineer, British Railways, "London Midland Region, under the general direction of Mr. S. B. Warder, Chief Electrical Engineer, British Railways Central Staff.

British Insulated Callender's Construction Co. Ltd., is the contractor for the overhead line equipment, A.E.I. (Woolwich) Limited, and Enfield Cables Limited, are contractors for the cable work, Bertram Thomas (Engineers) Limited for the isolating equipment, and Fuller Electric Limited for the booster transformers.

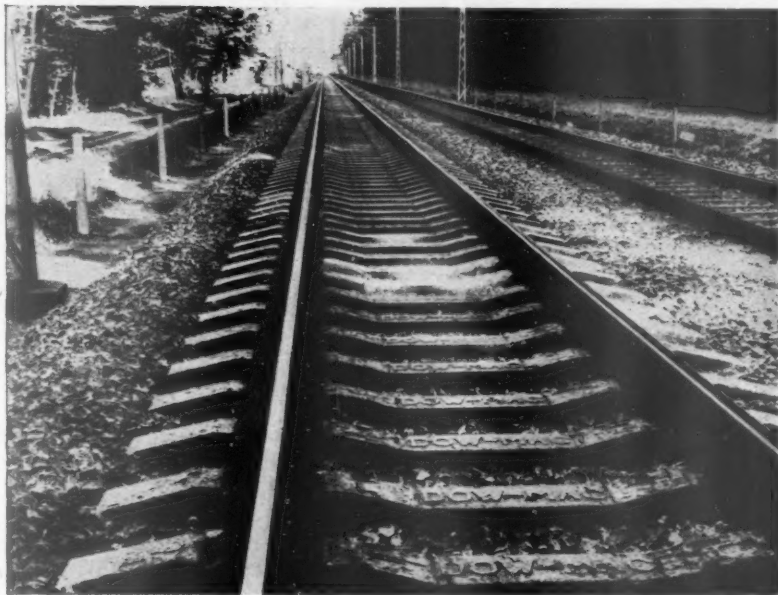


Rear view of high-voltage switchgear, showing terminations of feeder cables during course of erection

Research by U.I.C. into Types of Concrete Sleeper

Test lengths in Holland and Switzerland to compare behaviour of sleepers and track and costs of track-laying and maintenance

(By a correspondent)



British Railways Class "F" pre-stressed concrete sleepers and "RN" clip fastenings on test length on Swiss Federal Railways

THE International Union of Railways O.R.E. (Office of Research & Experiments) Committee D.22 is making a technical and economic study of established types of concrete sleepers used by several railways in Western Europe. To facilitate research into certain aspects of this study, two test lengths of track were laid in 1958, one on the Netherlands and one on the Swiss Federal Railways.

The former length contains six sections each with different types of sleepers as follows: (a) British Railways Class "F" pre-stressed concrete; (b) German Federal Railways Type "B.55" pre-stressed concrete; (c) French National Railways Type "RS" reinforced concrete with steel

tie rods; (d) Italian State Railways Eternit compressed asbestos cement; (e) Swedish State Railways Type "101" post-stressed concrete; and (f) Belgian National Railways Franki Bagon post-stressed articulated sleepers.

The Swiss length contains four sections as follows: (a) British Railways Class "F" pre-stressed concrete; (b) German Type "B.55" pre-stressed concrete; (c) French Type "RS" reinforced concrete with steel tie rods; and (d) French Railways Type "VW" pre-stressed concrete sleepers.

In each test length the individual sections are 550 yd. long and are laid with continuously-welded rails with stress-relieving switches between each section

and at each end of the lengths.

The object of the tests is to compare in near-identical conditions: (1) The behaviour in the track of various types of concrete sleepers and their fastenings; (2) behaviour of track sections equipped with different types of concrete sleepers; and (3) costs of track-laying and maintenance operations.

The lengths were brought to a high standard and only spot maintenance, where really necessary, is now being carried out and details recorded.

Periodical Measurements

Periodical measurements, generally at six-monthly intervals, are taken of: (i) The geometry of the track as given by an Amsler track-recording coach; (ii) longitudinal levels to show general settlement; (iii) smoothness of riding; (iv) state of the surface of rails and welds; (v) creep, if any, of the long rails; (vi) movement of rails on pads or pads on sleepers; (vii) tension and condition of fastenings; (viii) any signs of cracking or spalling of the sleepers; and (ix) mechanical performance of the insulating components.

Additional measurements are to be taken occasionally of the grading and shape of the ballast; Mauzin coach records; weight of particular sleepers; noise level; and static and dynamic track depression.

The British Railways sleepers for the length in Holland were manufactured by the Costain Concrete Co. Ltd., at Coltness, Lanarkshire, and those for the length in Switzerland by Dow-Mac (Products) Limited, at Tallington, Lincs.

The illustration shows the section on the Swiss Federal Railways incorporating the British Railways sleepers. In this case "RN" clip fastenings similar to those in use by the Southern Region were provided at the express request of the Swiss authorities and with the agreement of British Railways.

LIFTING BARRIERS ON EASTERN REGION.—Four 28-ft. lifting barriers have recently replaced the hand-operated gates at Ware Station, on the Liverpool to Hertford (East) line, British Railways, Eastern Region. The barriers were installed under the direction of Mr. R. A. Green, Signal Engineer, Eastern Region.

NEW DAY TRAIN FOR MOTORISTS BETWEEN TYNESIDE AND LONDON.—A new day service for motorists and their cars travelling between Newcastle and London will be introduced by British Railways at the end of May. It is of particular interest to Tyneside motorists travelling south. The service will be by a new train, "Anglo-Scottish Car-Carrier" which will run on weekdays from May 30 to October 1 inclusive. On Mondays to Fridays, the train will depart Newcastle at 3.6 p.m. and arrive Kings Cross at 8.30 p.m. On

Saturdays the departure time from Newcastle will be 2.5 p.m. with arrival at Kings Cross at 7.45 p.m. Cars will be loaded at the west end of Newcastle Central Station.

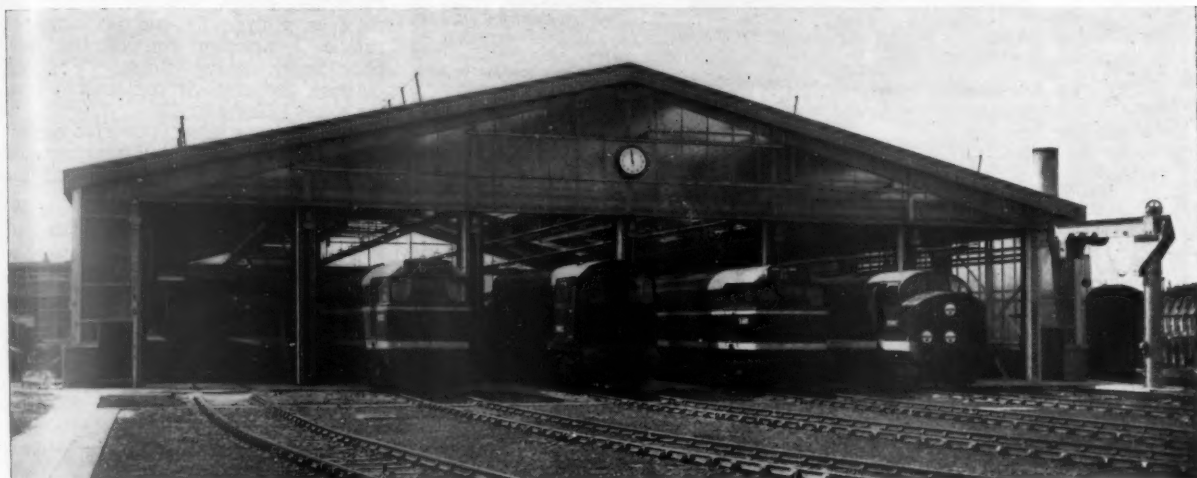
THIRD WORLD CONGRESS ON PREVENTION OF OCCUPATIONAL RISKS.—The Institut National de Sécurité de France is organising the Third World Congress on Prevention of Occupational Risks to be held at the Palais de Chaillot, Paris, on March 22-27, 1961, in collaboration with the Committee on the Prevention of Occupational Risks of the International Social Security Association (I.S.S.A.) and in co-operation with the International Labour Office. The subjects discussed will include the present state of research into occupational risks and progress in technical, medical, and psychological measures to reduce and eliminate risks. Among those attending will be

representatives of governments, business houses, and professional organisations. The official languages will be French, English, German, and Spanish. Further details may be obtained from the Institut National de Sécurité, Secrétariat du 3me. Congrès Mondial, 9, Avenue Montaigne, Paris, 8e.

LANARKSHIRE FARM MOVED BY RAIL AND SEA.—The Caledonian Steam Packet Co. Ltd. car ferry *Bute* made a special sailing on May 4 from Wemyss Bay to Millport with cattle and farm equipment. A special train for removal of a farm left Larkhall Central Station, British Railways, Scottish Region, on May 4, at 9.8 a.m. and arrived at Wemyss Bay at 11.4 a.m. The train consisted of 12 wagons conveying 81 head of cattle and 4 tons of farm implements, and a passenger coach for the farmer and his staff.

Finsbury Park Diesel Maintenance Depot

Eastern Region has in use the first new depot on British Railways for servicing main-line diesel locomotives



Types "1" and "2" diesel-electric locomotives in entrance to new Finsbury Park depot. Illustration shows (right) five-ton crane near stores loading bay

THE first British Railways maintenance depot built specially for dealing with main-line diesel locomotives was brought into use in April at Finsbury Park on the Great Northern Line of the Eastern Region. As recorded in an editorial note last week the ultimate capacity will be about 180 diesel units including 30 shunters.

Among the first locomotives being maintained at Finsbury Park are those which work the peak suburban services and outer suburban trains from and to Kings Cross and Moorgate and Great Northern Line services to Broad Street. These became fully worked by diesel locomotives in the summer of 1959 and many of the services have been accelerated and improved with the result that increased passenger traffic has been created.

Variety of Locomotives

At present five designs of diesel-electric main-line locomotive are catered for. The lowest-powered of these are British Railways Type "1" 1,000-h.p. Bo-Bo mixed-traffic units of English Electric Co. Ltd. design and manufacture with single cab and without train-heating boiler. Three different Type "2" locomotives there are the 1,100-h.p. English Electric Bo-Bo units with nine-cylinder Napier Deltic engines; 1,160-h.p. Birmingham/Sulzer Bo-Bo units which are being progressively re-allocated to the Scottish Region; and 1,365-h.p. Brush A1A-A1A units. Next up the power scale are the Type "4" 2,000-h.p. English Electric 1Co-Co1 units, and towards the end of the year these should be joined by the first English Electric 3,300-h.p. Deltic Co-Co locomotives in production form for working to Leeds and the Newcastle and Edinburgh services on the East Coast Route. Shunting locomotives receiving main-

tenance at the depot include 350-h.p. standard diesel-electric units with English Electric and Blackstone/G.E.C. power equipment, and 204-h.p. diesel-mechanical units by Andrew Barclay & Sons Ltd. with Gardner engines, Fluidrive couplings and S.C.G. five-speed epicyclic gear-boxes.

Sorting-Yard Site

The depot has been built to the west of the Great Northern Line on the site of the Clarence Yard goods depot, just south of Finsbury Park station. The site was chosen to give easy access to Kings Cross passenger and goods station about two miles away, to Ferme Park marshalling yard, Harringay, and the London area carriage sidings. Finsbury Park Depot will eventually deal solely with periodical examinations and a limited amount of repair work to locomotives, but in the meantime it will undertake daily servicing. General servicing facilities involving the replacement of fuel oil, sand, and water will be undertaken at Kings Cross, Hornsey, and Hitchin depots where most of the locomotives take up their trains.

Large Single-Span Roof

The main shed is a steel-framed structure with a single span of 111 ft. 6 in., 18 ft. 6 in. from rail level to the eaves. The roof covering is double-skinned asbestos cement with glass-fibre insulation and continuous glazing. The sides consist of dwarf brick walls with full glazing over the remainder. The whole structure is carried on about 400 piles.

Six tracks, each of sufficient length for three locomotives, have rails supported on short tubular steel columns alongside central concrete-lined inspection pits. At footplate level there are concrete permanent working platforms, the canti-

lever support beams of which carry lighting and power cables and all pipe-work for oil and water dispensers. Below each platform there is a low-level repair bay.

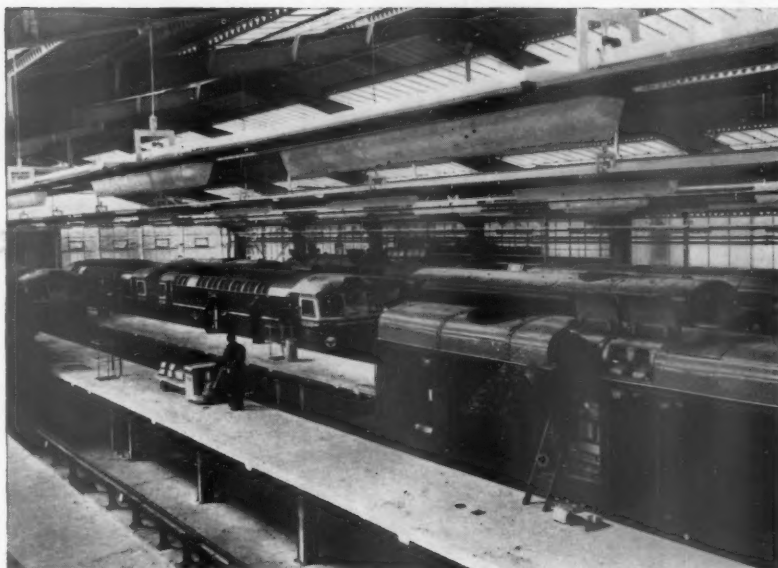
Heating is by continuous radiant strips supplied with high temperature water at 150 lb. per sq. in. from an oil-fired automatic La Mont boiler with Brightside control panel. Engine sump oil can be consumed as an alternative to the normal bunker fuel oil. Ventilation is by means of Colt ventilators.

Workshop Equipment

Workshop equipment includes a screw-cutting lathe by the Colchester Lathe Co. Ltd., a Herbert 1-in. radial drill and a New Progress No. 1 drill. A filter-cleaning room is equipped with Intermit plant for washing, re-oiling, and spinning the filter panels from locomotive air intakes, and there is a Laycock degreaser cubicle for small items of machinery. The battery-charging room has workbenches to enable the detachable brushgear of traction motors and generators to be cleaned and repaired and similar minor operations to be performed on electrical control gear and auxiliary motors.

The injector room is equipped with a Hartridge injector-tester which may be operated either with a hand lever or by flywheel and cam arrangement. In the main store about 2,500 stock items are held in readiness to meet all likely demands for servicing the locomotives.

Staff amenities include a mess room, excellent toilet facilities, and an individual clothes locker for each man. Offices and staff rooms are situated in a two-storey building joined to the south end of the shed by the workshops, main stores, and a maintenance schedules store. This building also includes a signing-on and



Interior of shed showing single-span roof construction and working platforms in use for servicing English Electric and Birmingham/Sulzer locomotives

notice lobby, a first-aid room, and a lecture room in which instruction will be given on the fundamental principles of the internal-combustion engine and electric power transmission to fitters who are mostly drawn from steam sheds elsewhere. It is a steel-framed structure planned on a 3-ft. 4-in. module and clad externally with aluminium-framed curtain walling. The floors are reinforced concrete and the roof is of light metal decking. The internal partitions are demountable and timber-framed with facing panels of galvanised metal or varnished plywood. The majority of the services are concealed within the suspended ceiling.

The artisan staff consists of 31 mechanical fitters, 18 electrical fitters and 32 fitters' assistants. The remaining staff totals 84 including those concerned with cleaning and labouring, oil dispensation, a clerical staff of six supplemented by two others assisting, three shift mechanical foremen, one senior maintenance foreman responsible for both mechanical and electrical work, and the Shedmaster. A large proportion of the labouring staff is West Indian.

Boiler House

The boiler house, on the west side of the depot and separated from it by a stores loading bay with 1-ton runway lifting hoist, is of brick construction and carried on a reinforced-concrete platform. It has a steel-framed clerestory and a flat roof. The outstanding feature is the 55-ft. high chimney of reinforced concrete construction with an enlarged lower portion to house part of a future water-softening installation.

Hot-water pressurisation control for the depot heating system is by a vessel containing nitrogen gas. A heat exchanger enables steam to be generated for the application of low-pressure heating to the bunker-oil tanks and piping to improve the flow by viscosity reduction.

Hot water for all domestic services is obtained through a calorifier.

Adjoining the boiler house is the air-compressor room to meet all compressed air requirements throughout the depot, also a department for mixing engine coolant by the addition of soluble oil; the use of chromate solution to inhibit power units against internal corrosion has been discontinued.

Fuelling and Sanding Equipment

Two 25,000-gal. vertical fuel tanks and a pump-house are situated alongside the approach lines with connections for filling from both rail and road tankers. Wayne equipment is used for fuelling the locomotives and there are fuel-oil interceptors below the discharge points to prevent drain-contamination from spil-

lage. In the same vicinity is the building housing a Kelbus sand-drying plant from which the sand is blown by compressed air into line-side hoppers for subsequent gravity feed to the locomotive sanding boxes.

The entrance to the depot can be closed by folding doors. Outside the entrance there is a fixed five-ton jib crane to handle locomotive components, and, occasionally, heavy stores. For this purpose, the crane is conveniently near the stores loading bay.

Adjoining the depot is covered accommodation for over 50 staff bicycles and a number of motor-cycles. Limited car parking space is also available.

Provision for Future Extension

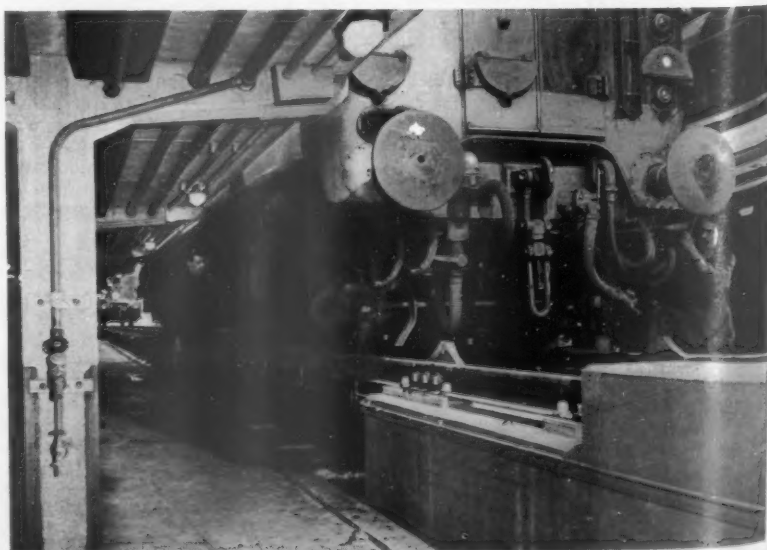
A special feature of the depot is that it has been designed to allow for enlargement to deal with electric locomotives additionally, in future, with a minimum of disturbance to normal work.

The opening of the new depot has enabled diesel maintenance work other than daily inspections to be discontinued at several steam depots including Hornsey and Hatfield. All heavy examinations will continue to be handled at Stratford Works, Eastern Region.

It is intended that use of the signing-on and notice lobby will be extended to include the separate staff responsible for servicing 35 Craven-built twin-unit diesel railcars with British United Traction power equipment at Western Sidings Depot, Finsbury Park.

The design of the maintenance depot itself was formulated under the general direction of Mr. A. K. Terris, Chief Civil Engineer, Eastern Region. Mr. H. H. Powell, Architect, Eastern Region, was responsible for the design of all other buildings.

Piling was undertaken by Holmpress Piles Limited, of Hull. Steelwork was fabricated by Wright Anderson & Co. Ltd., Gateshead, and general construction work was by Wimpey & Co. Ltd., of Hammersmith, London, W.6.



Inspection from one of the low-level repair bays of a Type "2" 1,100-h.p. Bo-Bo English Electric "Small Deltic" locomotive

Reconstruction of Stafford Station, L.M. Region

Four stages in replacing century-old structure in preparation for electrification of Euston-Crewe line. Two car parks, and lay-by for buses

WORK has started on reconstruction of Stafford Station, London Midland Region, British Railways, in preparation for the electrification of the London to Crewe, Manchester and Liverpool main line. The existing station buildings which, apart from some alterations and additions in 1888, are substantially the same as when they were built in 1850, will be completely demolished and the construction of a new station design is to start this year. The scheme provides for new platforms and permanent way, bridge work, re-arrangement of the layout of the goods and coal yard, erection of a large staff amenity block in the yard, and a new signalbox and signalling equipment, besides the station buildings themselves.

Combined Refreshment and Waiting Room

A combined refreshment and waiting room, serving cooked snacks and grills, will have access from the station concourse and from the street.

A bridge link will be formed between the station and the adjacent G.P.O. Sorting Office, and Station Road will be re-built and re-aligned by the local

authority. Mail will be carried between the station and the sorting office over the new bridge link. This will avoid congestion by mail vans in the forecourt during rush hours.

Two car parks will be provided, one for short waits with a capacity of 20 cars and one for long waits with a capacity of 50. A lay-by for buses serving neighbouring town and country districts, in addition to the town services, will be provided directly off Station Road.

Four Stages

The work is being carried out in stages, to minimise inconvenience to passengers and interference with train working. Stage 1, which includes the building of temporary station buildings while the existing station is being demolished, has begun. Two new through lines and platforms will be provided by cutting through the centre of the present down platform and work also will start on the signalbox and Station Road.

During Stage 2, Station Road will be closed and access to the station will be by steps from Newport Road or from Victoria Road. By this time the engineers

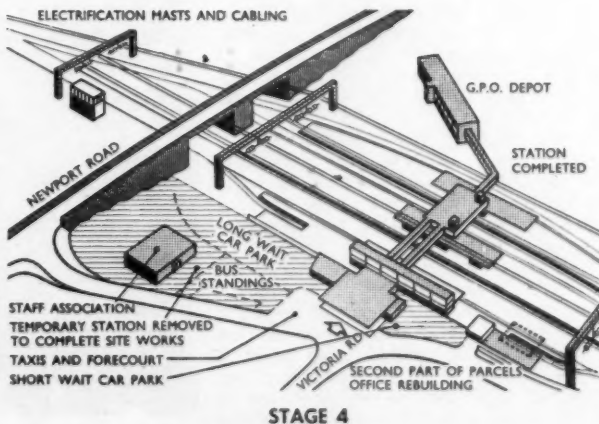
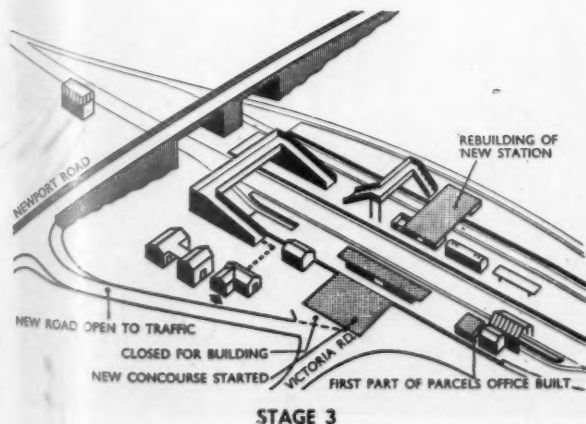
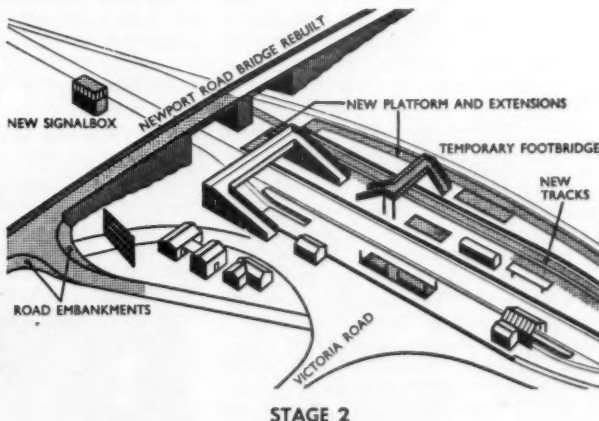
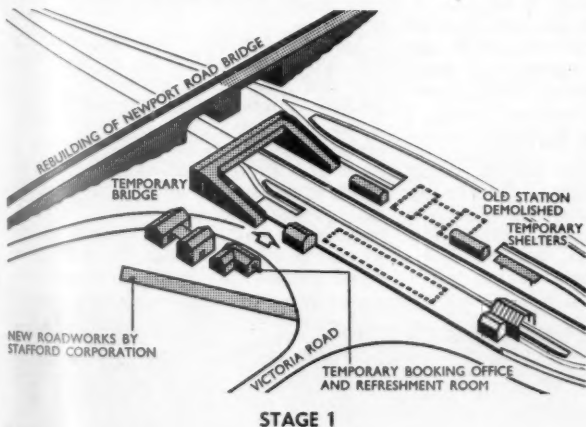
will have completed the new through lines and platforms which include complicated permanent way alterations at both ends of the station. These new lines will allow the Birmingham services to be separated from the London traffic and will simplify the running of the station.

Stage 3, which will commence in 1961, includes the completion of Newport Road Bridge, the bringing into operation of the new signalbox, and the beginning of construction of station buildings on all platforms. When the new Station Road is open work will begin on the concourse and booking office block. The station will be completed and in full operation in 1962.

Overhead Electrical Equipment

The high voltage overhead electric traction cables and suspension masts will be erected as soon as the other works are sufficiently advanced.

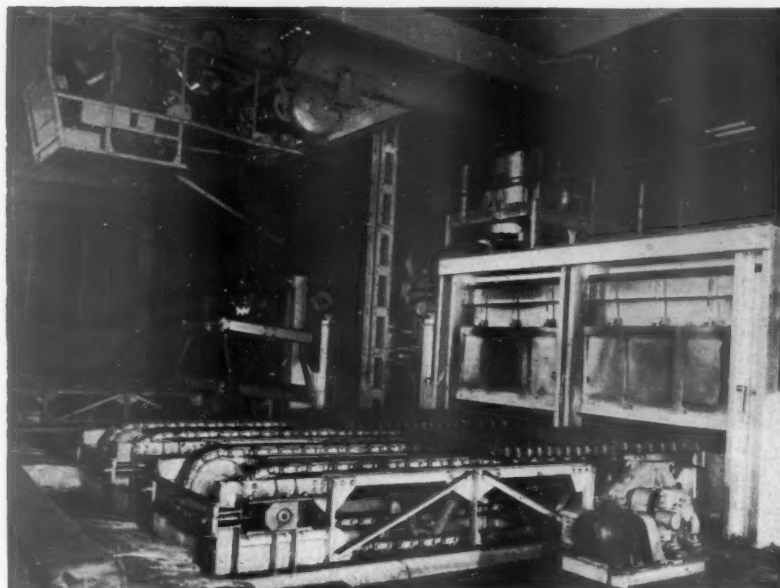
The work is being carried out by Mr. A. N. Butland, Chief Civil Engineer, London Midland Region, under whose direction an architectural layout has been designed by Mr. W. R. Headley, Regional Architect.



Four stages in construction of Stafford Station, London Midland Region

Fully-Automatic Copper Rod Rolling Mill

*New £1,500,000 installation at the Prescott Works
of British Insulated Callender's Cables Limited*



Wirebars being loaded into the twin re-heating furnace

THE new fully-automatic copper rod rolling mill which, as recorded in last week's issue, was officially opened by Mr. Reginald Maudling, President of the Board of Trade, at the Prescott Works of British Insulated Callender's Cables Limited, on May 10, is housed in a shop 520 ft. long, 104 ft. wide, and with a total floor area, including the maintenance bay, of 72,000 sq. ft. With the normal production of 100,000 tons a year, it can produce rod for drawing round wire or for rolling into strip.

A prime requirement for any large scale mill such as this is an adequate stock of wirebars, and for this purpose there is adjacent to the shop an open-air stockyard, 400 ft. by 100 ft., which is served by two six-ton cranes and has a capacity of 10,000 tons. From the stockyard the wirebars, each 54 in. long and with a tapered cross section to facilitate extraction from the casting mould, and each weighing roughly 265 lb., are hauled in 43-ton lots on charge cars drawn by diesel locomotive to the charging area, or furnace end, of the mill. The charge cars are unloaded by two Herbert Morris one-ton overhead travelling cranes, one for each furnace, which lift up the wirebars in rows of seven and transfer them as required on to one of the four furnace-charging conveyors.

An important feature of the new mill is that it is designed with two separate intermediate finishing and finishing trains. Rods of the same diameter or of two different sizes can, therefore, be rolled at the same time. The sizes of coiled rod diameter that can be rolled range in $\frac{1}{16}$ -in. steps from $\frac{1}{4}$ in. to $\frac{3}{8}$ in. There are seven wirebars moving simultaneously

in the mill, approximately 13 sec. out of phase on each side. A $\frac{1}{4}$ -in. rod starting on its journey as a wirebar at 584 ft. per min., emerges 95 sec. later as a coil some 1,300 ft. long at a rate of 3,500 ft. per min.

Walking Beam Furnaces

Such a capacity demanded the use of two furnaces, these being of the walking beam type manufactured by Wellman Smith Owen Engineering Corporation Limited. The furnaces, situated 30 ft. apart in parallel, are fired with heavy fuel

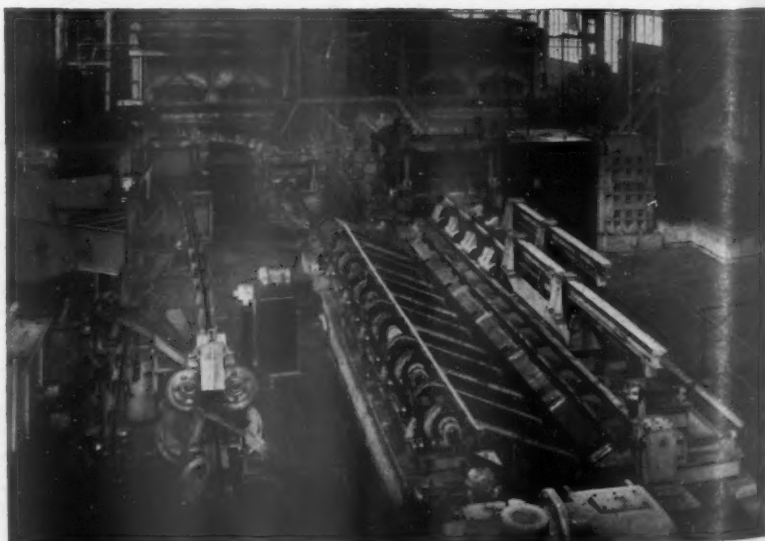
oil through Schieldrop self-proportioning burners located at the top of each combustion chamber. After being re-heated in the hearth for one hour to 810-830 deg. C., the wirebars are discharged at 13-sec. intervals on rollers from the bottom end of alternate furnaces to a cruciform turntable between the furnaces. This turntable rotates backwards and forwards through 90 deg. and its function is to receive and direct the wirebars for entry into the mill train.

An operator pushes a button to begin operations and the first wirebar is discharged on rollers from a furnace; the turntable is rotated and the bar is conveyed along a single roller-driven guide trough to the first stand, a 20-in. roughing mill.

Operation of Roughing Mill

On entering the roughing mill the bar is fed by an electro-pneumatic pusher through the first pass (12,427 sq. in.), raised on manipulating gear and pushed back again through two further passes (8.9 sq. in. and 5.63 sq. in.), manipulated up and sideways once more before being pushed through two subsequent passes (3.945 sq. in. and 2.5 sq. in.) and into position on a chain-driven side transfer table.

The rod emerges from the roughing mill 30 ft. long. After being transferred sideways and deposited in the intermediate roughing train, the rod is conveyed between a set of pinch rolls operated by a photo-electric cell, in a backward direction towards the 15 in. two-high two-stand intermediate roughing mill. There is speed variation at every stage in the mill. At the seven finishing stands, as a rod is rolled the rolls slow down initially, so boosters come into



General view of the roughing mill, showing a bar being removed on the conveyor

operation to raise the voltage and return the motor speed to normal.

Pass 6, the first stand of the intermediate roughing mill, marks the beginning of the duplicate trains. Rods enter these trains alternately by an automatic switching device, loop in an anti-clockwise direction through 180 deg. on a semi-circular tray and emerge through a second stand of rolls (64.7 ft. long) in the direction of the finishing mills.

The immediate destination of the rod is now the first of the 11-in. cross-country intermediate finishing mills which are of zig-zag formation and comprise six looping stands each. All the roll housings, except those in the finishing mill, are pre-stressed. All the rolls are of forged steel, their composition varying with duty.

Continuous Finishing Mill

Next the rod goes into the 9-in. seven-stand continuous finishing mill. The rod attains a speed of approximately 30 ft. per sec. on entering the finishing mill, and in the 2 sec. it takes to reach the coiler it is accelerated to a speed roughly double this figure. To roll a $\frac{1}{4}$ -in. rod all the seven passes of the finishing mill are employed; variation in roll centres is obtained by having one roller bearing mounted in an eccentric sleeve rotated by hand-operated worm gear.

There are two pouring type coilers at the end of each finishing mill, situated on each side of a quenching tank. Dogs on a conveyor remove the coils of rod from the quenching tank towards a mechanical fork lift at the end of the conveyor which then loads the coils on to a capstan. Each boom of the capstan will hold nine coils, and when it is fully loaded the capstan is rotated through 90 deg. and unloaded by a stacker truck, a fork lift truck with the forks removed and a single forward-facing boom fitted. The coils are finally taken to a large storage area at the end of the shop which is served by a five-ton overhead travelling crane.



One of the two continuous finishing mills

Flood lubrication with a solution of soluble oil in water is used for all the roll grooves, roller guides, stripper gear, and channels. This system consists of two settling tanks of 3,000 cu. ft. each, and one sump giving a total capacity of 60,000 gal. in continual circulation. Four pumps and one standby, each capable of delivering 600 gal. per min., are used to circulate the solution which gravitates back to the settling tanks. A 1,000-gal. mixing tank is installed.

The warmed water from the coil boshes overflows into settling sumps in the mill floor. Four pumps, one working and one standby per sump, are continually circulating the water at the rate of 15,400 gal. per hour. A forced draught cooler incorporated in the closed system of pipework reduces the temperature of

the water from 146 deg. to 96 deg. F. Included also is a bypass spillway and coke filter to remove the finer solids in suspension.

All the pushing and pulling mechanisms in the mill are operated electro-pneumatically. Air for this purpose is obtained from a ring main supplied by two compressors and one standby, each capable of delivering 300 cu. ft. per min. of free air at 80 lb. per sq. in. One 200 cu. ft. receiver is situated in the line.

Power Plant

The motors installed in the mill floor in relation to the various roll stands and coilers, have a total rating of 6,000 h.p. The maximum power requirement for the plant is 2½ MVA. The roughing and intermediate roughing mills are each driven by a 6.2-kV 600-h.p. slip-ring induction motor. The two intermediate finishing mills are split, each set of three stands being driven by a 500-V. 500-h.p. d.c. variable speed motor. Each stand on the two continuous finishing mills is equipped with a 500-V. 100-h.p. d.c. variable-speed motor. The power for these motors, 14 in all, is provided by two 1,250-kW. grid-controlled mercury-arc rectifiers, which also supply the motors for the intermediate finishing mill.

The four rod coilers are driven by variable speed 65-h.p. d.c. motors which receive their power from two m.g. sets situated in the electrics building.

The high-conductivity copper rod produced by the mill is used in the manufacture of all types of cable, wire, and strip, for electronics equipment, telecommunications, and electricity distribution, including railway electrification equipment.

The mill was designed in collaboration with Brightside Foundry & Engineering Co. Ltd., and installed by B.I.C.C. Limited. Much of the construction work for the building was carried out by Sir Alfred McAlpine & Son Ltd.



Layout of plant, showing finishing mill control rooms in the centre

Diesel-Hydraulic Shunting Locomotive

Three-stage torque-converter transmission incorporated in four- and six-wheel versions of Ruston 156-h.p. model

THE 28-ton 156-b.h.p. Ruston 165DH diesel-hydraulic shunting locomotive has been introduced as an extension to the "165" range which previously included units with only mechanical and electrical transmission systems.

It is powered by the Ruston six-cylinder YEXL turbo-charged diesel engine and a Twin Disc Series 10,000 three-stage torque converter which, with the Ruston reverse-reduction gearbox, is designed to allow the most efficient use of power throughout the whole range of haulage-duty demands. Final drive is by jackshaft and coupling rods. The transmission gives an automatic means of multiplying the engine torque by up to about five to one when otherwise there is insufficient torque to provide the motive power required as when accelerating a heavy load from rest or operating on inclines.

Control Simplified

For any given setting of the engine power-control lever the hydraulic transmission ensures that the travelling speed of the locomotive is the maximum for the required tractive effort. An air-operated clutch isolates the engine to facilitate starting and the engagement of forward and reverse gears.

The 165DH is available with 0-4-0 wheel arrangement suitable for gauges of 4 ft. 8½ in. to 5 ft. 6 in. or with an 0-6-0 arrangement for gauges of 3 ft. 3½ in. to 5 ft. 6 in. The working weight is the same for both the four- and six-wheel models.

The maximum starting tractive effort

of 16,200 lb. can be obtained with an adhesion of 578 lb. per ton. At 1.5 m.p.h. a tractive effort of 13,700 lb. is obtainable with an adhesion of 495 lb. per ton.

The general design follows very closely that of the 165DS diesel-mechanical and 165DE diesel-electric versions. The all-metal cab has two hinged doors with windows and additionally there are large drop windows at each side. An ample area of shockproof glass at the front and rear permits good vision in both directions. There are drop seats on each side of the cab. Footsteps and handrails are fitted at both sides and shunter's platforms are built into the frame at the forward end.

Fabricated-Steel Main Frame

The main frame is of heavy-gauge steel plate welded to form a single unit capable of withstanding the severe shocks sustained by shunting. The side panels and bonnet are of steel plate secured to angle supports. They are removable for engine inspection and maintenance. A 135-gal. fuel tank is mounted in the bonnet structure and a semi-rotary pump permits refuelling from barrels.

Full control of the locomotive is ensured by only three levers which operate, respectively, the engine speed and power, the reversing motion, and the brakes. They are duplicated to give convenient driving positions at both sides of the cab. There is a main switch box incorporating an ammeter, for operating lights and auxiliaries. A control desk disposed centrally on the front cab

plate incorporates air-brake pressure gauge, engine-oil pressure gauge, speedometer and mileage recorder, torque-converter temperature and pressure gauges, starting air receiver pressure gauge, compressor lubricating oil pressure gauge, and engine tachometer.

Valves for compressed-air starting are installed in all six cylinders of the diesel engine to ensure easy and immediate starting under all conditions. A constant supply of starting air is provided by the main compressor which is vee-belt driven from the engine crankshaft. A small petrol-engine-driven compressor set acts as standby in the event of pressure loss in the main air receiver.

Retardation is taken care of by Westinghouse air brakes operated from either side of the driver's cab by a hand-operated lever. A hand-operated screw-down emergency or parking brake actuates the main brake control linkage.

Centre drawhooks or automatic couplings and side buffers are supplied to suit individual haulage requirements.

The cast-steel wheels with shrunk-on rolled-steel tyres are hydraulically pressed on and keyed to the axles. Suspension is by laminated steel springs and the axle load is applied through forged-steel hangers, brackets, and pins. Single-flange axleboxes and split thrust collars between the boxes simplify access to the running gear.

Air-operated sanding gear is arranged for both forward and reverse application.

Power Unit

The engine which powers the 165DH is of the well-established YE range of heavy-duty water-cooled diesels manufactured by Ruston & Hornsby Limited. It is of the four-stroke direct-injection type and develops a rated power of 156 b.h.p. at 1,800 r.p.m. The crankcase and cylinder block are of monobloc construction in cast-iron with renewable wet liners and large inspection doors. Inlet and exhaust valves have stellite faces seating on renewable inserts in easily removable cylinder heads.

The crankshaft is a steel stamping with 4½-in. dia. main journals carried in underslung pre-finished steel-backed copper-lead bearings. H-section steel connecting rods which also have steel-backed copper-lead bearings are designed for removal through the cylinder bores. Pistons, of low-expansion silicon-aluminium alloy, have three pressure and two scraper rings. The turbo-charger is air-cooled and lubricated from the main engine oil system. There is an efficient heavy-duty oil-bath air cleaner.

Electric lighting equipment consists of headlamps at the front and rear of the locomotive, a cab lamp, and an inspection lamp. There is a 12-V. battery charged by a generator which is vee-belt driven from the main engine.



Ruston 165DH four-wheel diesel-hydraulic shunting locomotives at work on the sidings of the Goldendale Iron Co. Ltd. at Tunstall, Staffs.

RAILWAY NEWS SECTION

PERSONAL

Mr. Patrick Gibson, Assistant Public Relations Officer, Liverpool, London Midland Region, British Railways, has been appointed Public Relations Officer, Birmingham, London Midland & Western Regions.

Mr. K. W. C. Grand, M.Inst.T., Member of the British Transport Commission, who, as recorded in our May 13 issue, has been elected President of the Institute of Transport

promoted in 1941 to be Assistant General Manager. In 1941, also, Mr. Grand was appointed by the Railway Executive Committee as Liaison Officer to the Director-General of the Home Guard, with the rank of Colonel. He was also in charge of G.W.R. air raid precautions and fire fighting arrangements. He became Chief Regional Officer, Western Region, on nationalisation on January 1, 1948, and was renamed Chief Regional Manager in 1953. He became General Manager in 1955, and a member of

mittee. He was awarded the American Medal of Freedom with Bronze Palm for his services to the United States during the war and he is a Commander of the Order of St. John of Jerusalem.

Mr. E. L. Triffitt, M.I.C.E., Assistant Civil Engineer, North Eastern Region, British Railways, who, as recorded in our May 13 issue, has been appointed Chief Civil Engineer, York, was educated at St. Peter's School, York and Christ's College,



Mr. K. W. C. Grand
Elected President of the Institute of
Transport, 1960-61



Mr. E. L. Triffitt
Appointed Chief Civil Engineer, North Eastern
Region, York

for 1960-61, is a Vice-President of the Institute and has previously served on the Council from 1944 to 1947 and again from 1956 to 1959. Mr. Grand was educated at Rugby and entered the Great Western Railway service in 1919 at Park Royal Goods Station. After experience there, at Ealing Broadway, and in the Divisional Superintendent's Office, Paddington, he was transferred to the General Manager's Office in 1922. In 1926 he was appointed General Agent, G.W.R., for the U.S.A. and Canada. He was appointed Assistant Publicity Agent, Paddington, in 1929, becoming Commercial Advertising Agent a year later, Commercial Advertising & Publicity Agent in 1932, Commercial Assistant to Superintendent of the Line in July, 1933, and General Assistant to Superintendent of the Line in July, 1934. In May, 1936, he was appointed Divisional Superintendent, Swansea, returning to Paddington in October, 1937, as an Assistant to the General Manager. In 1939 he was appointed Principal Assistant to the General Manager, from which position he was

the British Transport Commission in 1959. He took an important part in the development of railway-operated air services and was responsible for the introduction of the first service between Cardiff and Plymouth in 1933. Subsequently he served on the boards of Railway Air Services Limited, Great Western and Southern Air Lines Limited; as Chairman of Guernsey Airways Limited, Jersey Airways Limited, and Channel Islands Airways Limited; and he was also a Director of British & Foreign Aviation Limited, and Chairman of Olley Air Service Limited. He has served on the boards of a number of associated bus undertakings and is a Director of the Western Welsh Omnibus Co. Ltd. He is also on the boards of the Penarth Pontoon, Slipway & Ship-Repairing Co. Ltd., and its associates, and is Chairman of the Fishguard & Rosslare Railways & Harbours Company. Mr. Grand was Chairman of the Railway Clearing House in its last days as a statutory body from 1953 to 1955, and is now Chairman of the B.T.C. Railway Clearing House Com-

Cambridge, where he obtained an Honours Degree in Mechanical Sciences. He joined the London & North Eastern Railway in September, 1927, as a graduate pupil in the Engineer's Office, York, under Mr. John Miller, then Engineer, North Eastern Area. He subsequently occupied positions in the Stratford, York and Newcastle District Engineers' Offices and in 1934 took up an appointment in the Bridge Office of the Civil Engineer, York. In 1938 he was appointed Chief Draughtsman, District Engineer's Office, York, and later the same year transferred to the New Works Section of the Civil Engineer's Office. He served in the Forces from 1939 to 1945, commanding 990 Port Maintenance Company, Royal Engineers, and later No. 1 Docks Group, R.E. He was successively Port Superintendent at Algiers (North Africa), Syracuse (Sicily), Brindisi and Taranto (Italy) and afterwards became Assistant Director of Transportation (Administration) A.F.H.Q., Rome. Mentioned in Despatches, he was, in 1954, awarded the Emergency Reserve Decoration



Mr. L. B. Marson

Appointed Assistant Adviser
(Special Projects), B.T.C.

On return to railway service, he was appointed Assistant to Engineer (Maintenance) in 1946 and two years later became District Engineer, York. In 1953, he took up the position of Assistant Engineer (Permanent Way) and in 1955 became Assistant Civil Engineer, North Eastern Region. Mr. Triffitt is a Fellow of the Permanent Way Institution. He is also President of the York City Division of the St. John Ambulance Brigade.

Mr. L. B. Marson, Development Officer, Traffic Department, British Railways, Central Staff, who, as recorded in our April 8 issue, has been appointed Assistant Adviser (Special Projects), British Transport Commission, joined the former North Eastern Railway at Beverley, in 1921. After service in the Commercial and Operating Departments, he was appointed Trains Inspector, Darlington, in 1934, subsequently becoming District Signalling Inspector and Controller. In 1937 he was appointed Senior Works & Accidents Clerk at Newcastle D.S.O., and in October, 1938, was selected for special training in the York Joint Staff Section. Mr. Marson served in the Royal Engineers from 1939 to 1945. He was D.A.D. Tn., Railway Operating, at the War Office; A.D.Tn., Railway Operating, Planning Staff, First Army, and served in the First Army A.F.H.Q. and the 18th Army Group in North Africa, being mentioned in Despatches. Subsequently he organised the production and assembly of "Mulberry" harbour at Southampton for "D" day and commanded the Home Railway Group with the rank of Colonel. Returning to the L.N.E.R., Mr. Marson was employed as Supernumary Assistant District Superintendent, Hull, and then as Senior Assistant, Works, Chief General Manager's Office. On nationalisation he was appointed Works Civil Defence Officer, B.T.C., and, from 1954, acted as Assistant to the General Manager (Productivity), Eastern Region, British Railways. In 1955 he was appointed Modernisation Assistant, Chief Operating & Motive Power Officer's Department, B.T.C. This position was subsequently redesignated, Development Officer.

Mr. W. H. Underwood, District Motive Power Superintendent, Glasgow (South), Scottish Region, British Railways, retires on May 21.

Mr. D. S. Hart, Operating Officer to the Divisional Traffic Manager, Birmingham, Western Region, British Railways, has been appointed Divisional Traffic Manager, Bristol.

Mr. G. R. Chrimes, Train Running Assistant to the Motive Power Officer, Waterloo, Southern Region, British Railways, has been appointed Trains Assistant, Waterloo. He succeeds Mr. N. L. Collins who is retiring on August 31.

Mr. J. J. Maguire has been appointed District Estate Surveyor, Norwich, Eastern Region, British Railways. He succeeds Mr. F. Allwright, who has retired. Mr. Maguire formerly held a similar position in the Estate & Rating Surveyor's Department, Glasgow, British Transport Commission.

Mr. W. K. G. Allen, Member of Council of the British Internal Combustion Engine Manufacturers' Association, has been re-elected Chairman of the British National Committee of the International Congress on Combustion Engines (C.I.M.A.C.). Other representatives re-elected were: Mr. E. S. Bates, B.P. Trading Co. Ltd.; Mr. J. S. Tritton, Diesel Engineers' & Users' Association, and Mr. F. Blackith, Wellworthy Limited, all for supporting industries.

Mr. H. F. Bauer, formerly Engineer-in-Chief, Buenos Ayres & Pacific Railway, whose death in Buenos Aires on May 2, was briefly recorded in our May 6 issue, was born in 1882. Mr. Bauer was educated at Merchant Taylors' School, and in 1900 served in South Africa with the Cape Mounted Rifles. In 1905 he joined the staff of the Buenos Ayres & Pacific Railway. In 1906 he was responsible for the MacKenna to Sanpancho branch construction and was then appointed Divisional Engineer, Palermo Section. Later he moved to the head office in Buenos Aires as Assistant to the Chief Engineer. His retirement became due in 1948, but he agreed to stay on, as Engineer-in-Chief, for a further 18 months to complete the hand-over following the purchase of this British owned railway by the Argentine Government. He continued to live in Buenos Aires until the time of his death. A keen Freemason, he reached high office in this sphere during his life in South America.

INSTITUTE OF TRANSPORT

The election of Mr. K. W. C. Grand as President of the Institute of Transport for the year 1960-61 is recorded on the previous page. The following officers also have been elected:

Vice-Presidents

Mr. A. F. R. Carling, Executive, British Electric Traction Co., Ltd.

Mr. H. H. Crow, Chairman & Managing Director, Crow Carrying Co. Ltd.

Lord Douglas of Kirtleside, Chairman, British European Airways.

Mr. H. C. Johnson, General Manager, Eastern Region, British Railways.

Mr. Alex. J. Webb, Assistant Operating Manager (Railways), London Transport Executive.

Mr. E. G. Whitaker, Transport Adviser to the Board of Unilever Limited.

Hon. Treasurer

Mr. F. C. Asgill, Vice-Chairman, Stephenson Clarke Limited.

Hon. Librarian

Major-General Sir Reginald Kerr, General Manager, British Waterways.

Council Vacancy

Sir Brian Robertson, Chairman, British Transport Commission, whose term of office as a Vice-President of the Institute ends on September 30, has been elected a Member of Council for one year from October 1 to fill a casual vacancy.



Mr. H. C. B. Hill

Appointed Assistant (Traffic Planning),
Western Region

Mr. H. C. B. Hill, Head of the Works Modernisation Sub-section, Works Section, General Manager's Office, Western Region, British Railways who, as recorded in our April 15 issue, has been appointed Assistant (Traffic Planning), General Manager's Office, was educated at King's School, Worcester. He began his railway career with the Great Western Railway in the Audit Section, Chief Accountant's Office, Paddington, in 1920. The following year he was transferred to the Staff Section, General Manager's Office, and, from 1924 to 1929, was engaged on a course of special training in the Traffic, Goods, Locomotive, Docks and General Manager's Departments. Later, Mr. Hill held positions in the Development, Claims and Mineral Sections of the Chief Goods Manager's Office. In 1940 he returned to the General Manager's Office on the Works Section, and was Head of the Works Modernisation Sub-section. Mr. Hill is a holder of the Brunel Medal of the London School of Economics.

Mr. E. W. Isaacs, Additional Member (Mechanical) Indian Railway Board, has been appointed Member, Engineering.

Mr. L. B. Unwin, Vice-President of Finance, Montreal, Canadian Pacific Railway, retires at the end of May. He will be succeeded by Mr. James Masters, Assistant Vice-President.

Mr. A. Haworth, Assistant District Goods Superintendent (General), Newcastle, North Eastern Region, British Railways, has been appointed District Commercial Manager, Dundee, Scottish Region.

Mr. W. E. Prior, Northern Rubber Co. Ltd., has been re-elected Chairman of the British Mechanical Rubber Manufacturers' Association for 1960-61. Mr. J. W. Mann, Joseph Lucas (Electrical) Limited, has been re-elected Vice-Chairman.

Mr. D. De Cuevas and Mr. C. Cuthbert have been appointed Directors of the Leyland & Birmingham Rubber Co. Ltd.

Mr. P. M. Holman has relinquished his office as Joint Managing Director of Holman Brothers Limited, on attaining the age of 65, but continues as Chairman. Mr. J. F. Holman is now Managing Director.

NEW EQUIPMENT AND PROCESSES



Bellows Expansion Joints

THE Genflex bellows expansion joint absorbs the expansion and contraction of pipe systems resulting from temperature changes. Typical applications are steam services, heating mains and diesel exhaust systems. Bellows can also be used advantageously in shaft seals, packless glands, expansion pockets, packless valves, and flexible joints.

Unlike expansion loops, the unit is compact, flexible, and designed to absorb vibration and movement in all planes. It also simplifies installation and reduces maintenance.

The standard bellows is produced from 18/8 cold rolled stainless steel sheet, welded under accurately controlled conditions in a tube with a longitudinal butt weld, of the same material thickness as the adjacent metal. Convolutions are then formed without any circumferential welds.

For special applications, the bellows can be manufactured from Nimonic 75 for temperatures over 750 deg. C. and Monel, Inconel and Titanium where unusually corrosive conditions occur. Rectangular and other special bellows can be fabricated to large sizes. Diameters above 120-in. bore can be made. Units are available with all patterns of restraint such as hinged, gymbal, tied or articulated, and with any type of coupling.

Further details can be obtained from Vokes Genspring Limited, Henley Park, Guildford, Surrey.

Combined Welding and Cutting Outfit

THE "Economatic" 50-2 is a combined welding and cutting outfit designed to effect substantial economies in gas consumption. It is claimed to be of particular value in production work, or wherever there is continual operation.

After lighting in the normal way, the flame is obtained by pressing a thumb lever which, when released, reduces the flame to a minute pilot light. A non-automatic version of the torch, Model 19-GMC, is also available.

By unscrewing the mixer assembly and replacing it with a cutting head, the blowpipe is converted to a cutting torch.

Made of brass, the Model 19-GMC welding blowpipe weighs only 15 oz. The "Economatic" is 1 oz. heavier. When completely assembled, to include one of the standard range of 10 nozzles, the torches are only 12½ in. long. The nozzles, which are identical to those used on the manufacturer's existing

Series 13-90 torches, permit welding of sheet steel up to 1 in. thick.

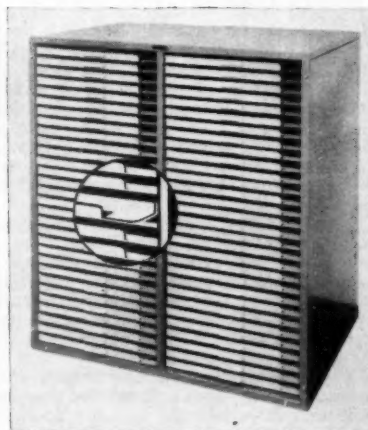
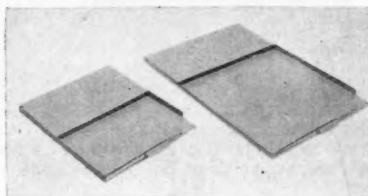
Colour-coded for identification, forward-mounted controls allow easy adjustment, and the gas control valves are of the fine-adjustment type.

The cutting head—Model 36—is 7½ in. long and weighs 12 oz. complete with nozzle. It will cut sheet steel up to 3 in. thick.

Of exceptional robustness, the small size and light weight of these torches makes them of particular use where operators are obliged to work in confined or cramped positions.

Manufactured in Britain by arrangement with the Harris Calorific Company of Ohio, this equipment has already proved itself in America under a wide range of operating conditions.

Further information can be obtained from the manufacturer, British Industrial Gases Limited, 700, Great Cambridge Road, Enfield, Middlesex.



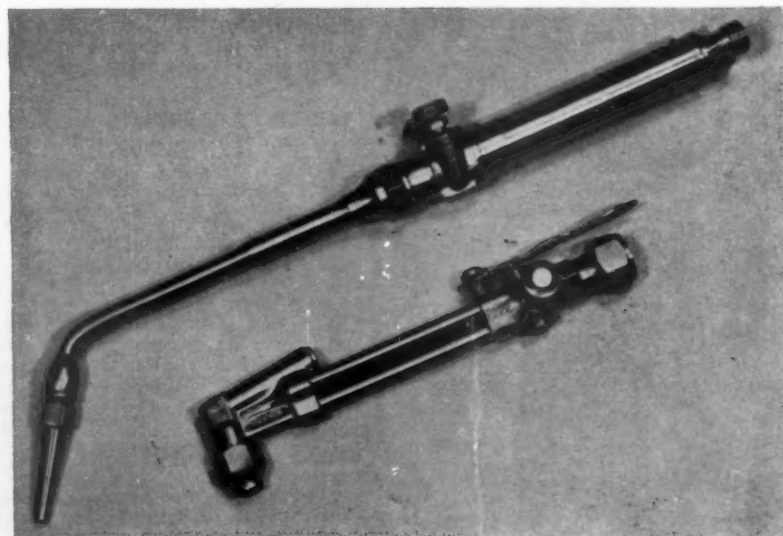
Storage for Drawings

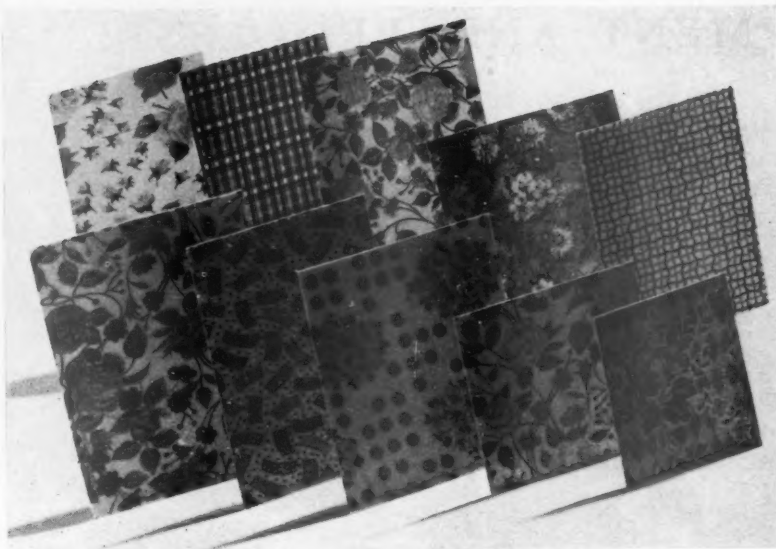
RANPLAN cabinets for the storage of drawings in the flat, as described briefly in our March 25 issue, have 1-in. deep sliding trays of the envelope pattern with the back section of each boxed for about one-third of its length to ensure smooth entry of drawings.

The right hand corner of each tray has the side and front flanges notched away for 3 in. to enable drawing references to be read easily while in position. Press-formed radiused handles and ticket strip holders are attached to each tray. Sizes available are for 15 by 20 in., 20 by 30 in., and 30 by 40 in. drawings.

Steel cabinets are supplied to house (A), 30 of the largest trays (cabinet size 47½ in. high by 32½ in. wide by 41½ in. deep; (B), 60 trays for 20 by 30-in. drawings arranged in two bays (size 47½ by 44½ by 31½ in.), and (C), 90 trays for 15 by 20-in. drawings in three bays (size 47½ by 51½ by 21½ in.). Net ex-works prices range from £66 4s. to £79 0s. 6d. including purchase tax. Hinged doors are £7 0s. 3d. extra and these can be made to lock.

Further details may be obtained from James H. Randall & Son Ltd., Paddington Green Works, London, W.2.





Polyester/Glass Sheet

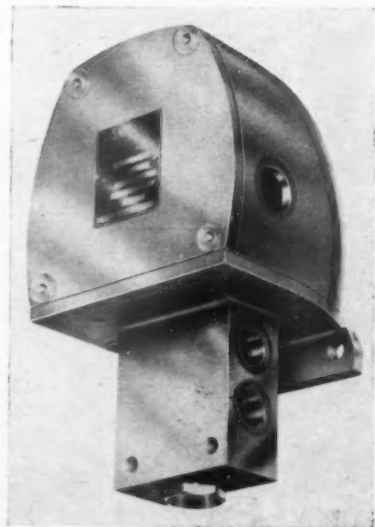
FORMI-STIKA is a decorative polyester/glass laminate, which is available in flexible and rigid form. Consisting of printed cloths backed by glass fibre and impregnated with Cellobond polyester resin, and available in a wide variety of designs it combines decorative effect with the durability of plastic sheet.

The laminate can be supplied with an adhesive backing to provide an immediate bond between laminate and undersurface. The surface abrasion resistance of the sheet compares favourably with that of paper decorative laminates.

It possesses exceptional stain resistance, is unaffected by alcohol, fruit juices, and household chemicals, and is not easily marked by burning cigarettes.

At present supplied in 6 ft. x 3 ft. sheets the laminate will shortly be available in continuous sheet form. Unusual shapes can be moulded to meet special needs. In its flexible form its thickness, between 1-2 mm. retains a degree of translucency suitable for installations where hidden lighting is required. Rigid sheets can be moulded to any specified thickness.

This laminate is especially recommended



for application on flat or curved surfaces.

Further details can be obtained from the manufacturer, Lancashire Fibre Glass Mouldings Limited, Station Works, Durham Avenue, St. Annes-on-Sea, Lancashire.

Solenoid Valve

THE SVR4 is a solenoid-operated valve designed for operation on a 240-v. or 415-v. 50-cycle single-phase electrical supply. When energised, the continuously-rated solenoid coil thrusts a balanced poppet valve off its seat permitting fluid flow from the lower to the upper ports at a maximum flow rate of 4 gal. per min. at a pressure of 3,000 lb. per sq. in.

Notable design features of this new valve include improved balanced poppet valve permitting high-pressure operation with minimum current consumption; "straight-through" ports for ease of installation and elimination of "tee" junctions in the hydraulic circuit, and conduit entry in the sturdy casting housing the coil.

Under normal conditions, frequency of operations is 4 per min., but more frequent operation is permissible provided micronic oil filtration is employed.

The recommended oil for use with this valve is a light mineral (or petroleum base) hydraulic oil.

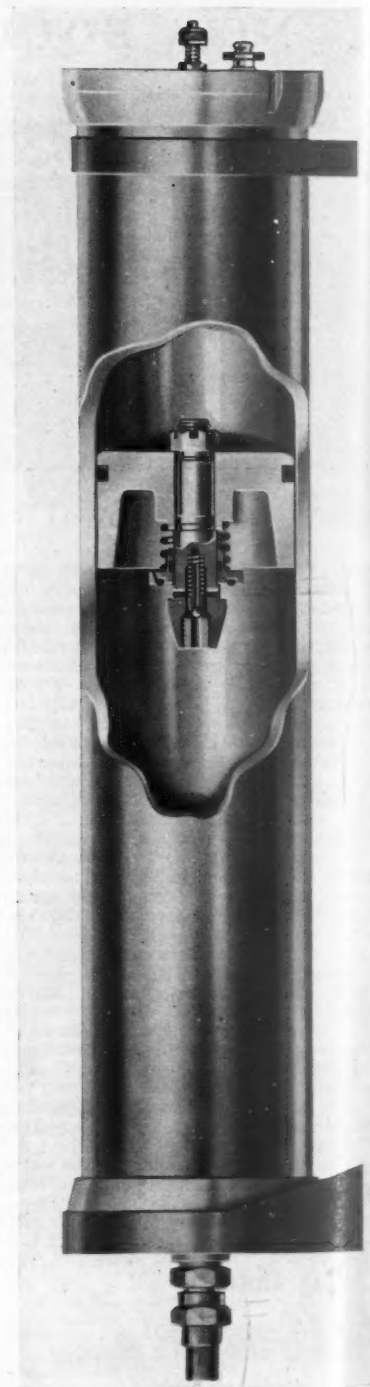
Further details can be obtained from Smith's Jacking Systems Limited, Witney, Oxon.

Hydraulic Accumulators

THREE new series of hydraulic accumulators have been added to the existing range manufactured by Industrial Hydraulics Limited. All are of screwed end construction incorporating safety interlocks to prevent dismantling while the units are under internal pressure.

Series II covers pressures up to 2,000 lb. per sq. in. with capacities ranging from 8 to 20 gal.; Series III covers pressures up to 5,000 lb. per sq. in. with capacities ranging from 1 to 8 gal., and Series IV covers pressures up to 5,000 lb. per sq. in. with capacities ranging from 8 to 20 gal. Various port sizes and flanges are available.

All three accumulators embody the manufacturer's patented liquid seal piston assembly to overcome the problem of sealing the gas charge when the system is shut down. The liquid seal accumulator incorporates a



probe which seals the oil outlet when it is discharged. The oil trapped in the space between piston and end cover acts on an area less than the full piston area by the amount covered by the port sealing ring. Pressure of the trapped oil is thus greater than that of the gas charge in the ratio of full piston area to area acted on by trapped oil. The problem is simply that of retaining oil under a low differential pressure. Should there be any leakage, this would be of oil into the gas chamber rather than of gas into the hydraulic system.

Further details can be obtained from Industrial Hydraulics Limited, 101, London Road, Reading, Berks.

Locomotive Naming Ceremony at Euston

British Railways Type "4" Diesel of L.M. Region named "Empress of Britain" by President of Canadian Pacific



Mr. N. R. Crump speaking at the naming ceremony at Euston with Lord Nelson (left) and Mr. David Blee

At a ceremony held last week at Euston, London Midland Region, a British Railways Type "4" diesel-electric locomotive No. D210 was named *Empress of Britain*, after the Canadian Pacific trans-Atlantic passenger liner bearing that name, by Mr. N. R. Crump, President of the Canadian Pacific Railway and a director of Canadian Pacific Steamships.

The locomotive is the first of the batch of 27 2,000-h.p. 1Co-Co1 units used primarily for hauling the principal express trains between Euston and Liverpool and built at the Vulcan Foundry Limited, a member of the English Electric group of companies. The locomotive was described in our April 25, 1958 issue.

Mr. David Blee, General Manager, London Midland Region, who presided, said that it was a fitting tribute to the Port of Liverpool that locomotives should carry the names of some of the great ships that ply between there and other continents. He added that the importance of the traditional link by the London Midland Region between the Thames and Merseyside was exemplified by the fact that, in the course of a year, over 250,000 people were carried in each direction by trains of the Region between these two great centres and ports.

Timekeeping During Reconstruction

Mr. Blee emphasised that the utmost importance was attached by the Region to good timekeeping on its services and, at a period when complete reconstruction is being carried out on this route, the additional power, speed, and proven reliability of these fine new locomotives would do much to recover time given to the engineers for the immense works being carried out on the track between London and the North West.

Mr. Crump referred to his own long association with diesel - motive power in North America and hoped that *Empress of Britain* would give as good service as his company had experienced with the vessel after which it was named.

Also present at the locomotive naming ceremony were Lord Nelson of Stafford, Chairman of the English Electric Co. Ltd., and Mr. E. W. Arkle, Chief Traffic Officer, British Transport Commission.

Others who attended included :—

British Railways, London Midland Region : Messrs. L. W. Cox, Assistant General Manager (Administration); A. N. Butland, Chief Civil Engineer; A. E. Robson, Chief Mechanical & Electrical Engineer; E. G. Brentnall, Signal Engineer; H. Aidley, Regional Establishment & Staff Officer; Capt. J. D. Reed, Manager (Irish Shipping Services); Mr. R. L. E. Lawrence, Divisional Traffic Manager, London;

English Electric Co. Ltd. : Messrs. C. C. H. Wade, Manager (Sales & Contracts); A. V. Stewart, Traction Department;

Canadian Pacific : Messrs. H. Arkle, European General Manager; D. K. Buick, Deputy Vice-President of Purchases; J. R. Y. Johnston, Managing Director, Canadian Pacific Steamships; H. P. Miller, Vice-President of Purchases; G. K. Nield, Publicity Manager; D. Wallace, Publicity Manager (Montreal).

Regional Plans Discussed with N.E. Staff

Some 300 representatives of traffic staff in the West Riding Area of the North Eastern Region, British Railways, met Regional and Area Officers in the Oxford Place Methodist School Hall, Leeds, last week, to hear details of the modernisation plans for the area and later discuss them informally.

Opening the proceedings, Mr. E. Cowell, Area Traffic Manager, stressed that the meeting was not "formal consultation" procedure, but an effort to help the men at local level to appreciate the broad intentions and understand how the various schemes fitted into an overall pattern and how they would affect railwaymen in the West Riding area. There had been anxiety, he added, and it was with the intention of dispelling this that the gathering had been arranged with the full support of the Sectional Councils concerned.

Mr. F. C. Margetts, Assistant General Manager (Traffic), had intended to survey the plans for the area, but illness prevented

him being present and the paper which he had prepared was read by Mr. L. M. Sayers, Assistant General Manager (Administration). Reading from Mr. Margetts' paper, Mr. Sayers stated that management had to find means of countering the difficulties caused by size and remoteness.

Reference was made in the paper to the contraction of the Regional railway network, modernisation of stock, the change from steam to diesel and electric traction, extension of colour light signalling and C.T.C., use of mechanisation and automation, and re-organisation of goods traffic facilities.

Plans for the main passenger stations, particularly the new Leeds City, were outlined as were those for new signalboxes.

The effect of the many modernisation schemes on the rolling stock position was examined and it was shown how modernisation would permit a considerable reduction in wagon and coaching stock.

Provision for staff would be in line with the more visible features, and the men would have the opportunity to discuss detail under the consultation procedure.

Redundancy

Mr. S. J. Judson, Regional Establishment & Staff Officer, emphasised that with good staff planning redundancy need not be a fearful thing. Normal wastage would take care of the staff reductions envisaged in the plans outlined. They had sufficient vacancies already in the West Riding which, taking the broad view, would absorb staff surpluses.

Questions were invited and answered by a panel consisting of the West Riding District Traffic Officers with the Area Traffic Manager in the chair. The subjects ranged from the future of depots and signalboxes to the difficulties in accommodating parcels traffic in diesel units. Later at an informal gathering, many of the answers to earlier questions were elaborated and many more dealt with in group discussion.

British Exhibition in New York

The British Exhibition in New York, to be held in the Coliseum, Columbus Circle, in Central Park, on June 10-26, will include electrical and mechanical handling equipment.

Exhibitors will include the following:

Associated Electrical Industries Limited; Automatic Telephone & Electric Co. Ltd.; Avery-Hardoll Limited; the Board of Trade; British Insulated Callender's Cables Limited; British Iron & Steel Federation; British Travel & Holidays Association; Conveyancer Fork Trucks Limited; Cummins Engine Co. Ltd.; Thomas de la Rue & Co. Ltd.; Dowty Group Limited; Dunlop Rubber Co. Ltd.

Ferranti Limited; Finlay Engineering Limited; Girling Limited; Hallam Sleigh & Cheston Limited; Hawker Siddley Aviation Limited; Imperial Chemical Industries Limited; Lancashire Dynamo & Crypto Limited; Leyland Motors Limited; Joseph Lucas (Export) Limited; Massey Ferguson (United Kingdom) Limited; Metal Industries Limited; Morgan Crucible Co. Ltd; Opperman Gears Limited.

Perkins Engines Limited; Port of London Authority; Pressed Steel Co. Ltd.; Rolls-Royce Limited; Rotax Limited; Rubery Owen & Co. Ltd.; Scottish Council (Development & Industry); Standard Telephones & Cables Limited; Taylor Electrical Instruments Limited; Tube Investments Limited; Vickers Limited; Wiggins Teape Group.

Editorial reference is made on page 586.



British Waterways Luxury Cruiser

A luxury cruising vessel, *Fair Lady*, the first cruiser to be specially equipped for business conferences, cocktail, luncheon, and dinner parties, was demonstrated by British Waterways at "Little Venice" on the Grand Union Canal in London on Tuesday, May 10.

The vessel, which is to operate on inland waterways in the London area and surrounding countryside, was formerly the Leeds and Liverpool cargo craft *Ribble*. She has been converted and equipped with a spacious saloon with full-view windows, a compact and fully-licensed bar, radio, and galley able to serve full-course luncheons and dinners.

For conferences, the forward part of the saloon is laid out with a long centre-table seating up to 20 people; a similar number can be catered for in the after section at five separate tables for lunch and dinner. For most other purposes the saloon can accommodate parties of up to 40.

The boat, which is 61 ft. long with a beam of 14 ft. 3 in., is powered by a three-cylinder diesel engine.

Fair Lady can be chartered for day, half-day, and evening cruises on the Grand Union Canal between London and Berkhamsted and on the Lee Navigation to Hertford.

Parliamentary Notes

Railway Facilities in Scotland

The proposed closing of 24 railway stations and two branch lines north of Inverness by the Scottish Area Board of the B.T.C. on June 13 was the subject of a deputation of local authorities to Westminster on May 12, headed by Provost Wotherspoon, Inverness.

They had come to state their case to Highland M.P.s. for Highland constituencies, but on their arrival Sir David Robertson (Caithness & Sutherland—Ind. U.) and Mr. John Macleod (Ross & Cromarty—N.L.C.) saw Mr. Ernest Marples, Minister of Transport, at the committee on the Road Traffic Bill, and persuaded him to hear the deputation.

The deputation said that at this time, when the Government Highland economic policy was giving priority to increasing tourism, it was "utter folly" to prune transport services. This was a time to extend railway travel, particularly with road congestion, and the Government ought to do this to assist the tourist drive. They had no reason to believe that the Government, which had



British Waterways luxury day cruiser "Fair Lady". Top pictures show fore and aft views of saloon. (Right): set for a conference. (Left): for luncheon or dinner party —galley, bar, and toilet facilities are in the background

faced up to so many serious problems, would not face the need to subsidise transport in the Highlands. If diesel trains were put into operation, the estimated annual loss of £400,000 on the railways in the Highlands would be cut by £235,000. If a Government subsidy was given, this loss would be eliminated.

The deputation requested that no more closures and cuts in railway services be effected, particularly at the height of the tourist season and while the Advisory Group was holding an inquiry into the railways. It also criticised the alternative transport services being offered as totally inadequate, as shown by experience.

The deputation later met Highland M.P.'s and a meeting between the Minister and M.P.'s at another date was agreed.

Tribute to Coles Crane

A Coles Ranger truck-mounted crane has been chosen by the Council of Industrial Design as typical of the best in British engineering design and construction and, in scale form, will be included in the British Government exhibit at the Canadian National Exhibition in Toronto from August 24 to September 10.

The Coles Ranger is a heavy-duty crane with a lifting capacity of 25 long tons at 10 ft. rad. with a 30-ft. centres strut jib. Crane movements are powered by diesel-electric transmission and an A.E.C. oil engine for chassis travelling.



Coles crane which has received praise from Council of Industrial Design

Contracts and Tenders

British Railways main-line diesel-electric locomotives on order or authorised

It was stated in our May 13 issue that the British Transport Commission had over 1,300 main-line diesel-electric locomotives on order or authorised. Figures now released show this total to be 1,827 made up as follows:—

270 Type "1," 800-1,000 h.p.: 128 English Electric Co. Ltd., 44 Associated Electrical Industries Limited, 10 North British Locomotive Co. Ltd., and 88 authorised but not ordered

700 Type "2," 1,000-1,365 h.p.: 176 British Railways works, 10 English Electric Co. Ltd., 20 Associated Electrical Industries Limited, 116 Birmingham Railway Carriage & Wagon Co. Ltd., 226 Brush Electrical Engineering Co. Ltd., 116 North British Locomotive Co. Ltd., and 36 authorised but not ordered

272 Type "3," 1,500-1,750 h.p.: 79 English Electric Co. Ltd., 45 Beyer Peacock (Hymek) Ltd., 98 Birmingham Railway Carriage & Wagon Co. Ltd., and 50 authorised but not ordered

563 Type "4," 2,000-2,700 h.p.: 325 British Railways works, 200 English Electric Co. Ltd., and 38 North British Locomotive Co. Ltd.

22 Type "5," over 3,000 h.p., English Electric Co. Ltd.

The British Transport Commission has ordered 22 railway travelling breakdown cranes for British Railways from Cowans, Sheldon & Co. Ltd. They are required for lifting heavy equipment, including electric or diesel locomotives, in emergencies. Twelve of them are of a new 75-ton type for use on main lines. The remainder are capable of lifting up to 30 tons, and have been designed to work on both main and branch lines. Four of the cranes, two of each capacity, are driven by diesel engines with hydraulic transmissions. The rest have conventional steam engines. The first is expected to be delivered at the end of 1960.

The British Transport Commission has placed a contract with Associated Electrical Industries Construction (Cable & Lines) Division for the supply, supervision of laying, jointing, and so on, of some 24 miles of 33-kV, three-core oil-filled cable with aluminium conductors along various sections of the main London-Brighton line, British Railways, Southern Region. The value of the contract is some £150,000.

The Federal Railways of Brazil (Rede Ferroviária Federal) has ordered 32 additional General Motors diesel-electric locomotives. Sixteen locomotives will be of 1,425/1,310 h.p. and 16 of 950/875 h.p. Purchase of the locomotives from the General Motors Overseas Operations Division was made possible with a credit from the Export-Import Bank of Washington. The new order brings the number of locomotives to be manufactured by the G.M. Electro-Motive Division at La Grange, Illinois, for shipment to Brazil this year to 92. After these deliveries are completed, a total of 291 General Motors diesel locomotives will be in operation in Brazil. The remaining 60 G.M. locomotives scheduled for delivery to Brazil in 1960 include 25 for E.F. Vitoria a Minas, 23 for Cia. Mogiana de Estrada de Ferro, and 12 for E. F. Araraquara.

British Railways, Eastern Region, has placed the following contracts:

Walter Lawrence & Son Ltd.: provision of staff accommodation at Canning Town Haymills (Contractors) Limited: construction of ancillary buildings at Stratford Diesel Maintenance Depot

James Miller & Partners Ltd.: construction of servicing shed, including inspection pits and ancillary buildings, reinforced concrete bund walls, sand bunker foundations, drainage, pump-houses, water supply, diesel fuel pipe ducts and fuelling points for Temple Mills Motive Power Depot

Standard Telephones & Cables Limited: supply and installation of plain and corrugated sheathed tele-communications cables between Fenchurch Street and Shoe-buryness and connecting branches

J. Dixon (Doncaster) Limited: provision of staff accommodation at Manvers Main Colliery

Cubitt & Gotts Limited: construction of signalbox at Witham

Charles R. Price: construction of 70-ft. turntable foundation in brick and concrete at Doncaster Motive Power Depot

Brush Electrical Engineering Co. Ltd.: supply, delivery and erection of e.h.v., m.v. and pilot cables, e.h.v. and m.v. switchgear, transformers, rectifier and battery charging equipment at March, Whittemoor.

British Railways, Scottish Region, has placed the following contracts:

John Best (Contractors) Limited: construction of signalbox, sub-station and control towers, Millerhill new marshalling yard, Edinburgh

Taylor & Hubbard Limited: two 10-ton diesel-electric rail travelling cranes

The Lanarkshire Welding Co. Ltd.: reconstruction and erection of new steel superstructure, underbridge No. 8, Shawlands

James Miller & Partners Ltd.: reconstruction of underbridge No. 2, Broomhouse Road, Edinburgh

John Drysdale & Co. Ltd.: culverting of Monkland Canal, Drumpellier

P. & W. MacLellan Limited: part reconstruction of overbridge No. 63A, Airdrie Goods Station

Toffolo Jackson & Co. Ltd.: modernisation tiler work Queen Street Low Level Station, Glasgow

James Miller & Partners Ltd.: renewal of superstructure, overbridge No. 150, Broomieknowe Road, Burnside

The Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From Egypt:

300 axles for bogie wagons.

The issuing authority and address to which bids should be sent is the Egyptian Republic Railways, Purchases & Stores Department, Railways Building, Fifth Floor, Shoubra, Cairo. The tender No. is E.R. 321 G8/2/1398. The closing date is May 24, 1960. No further information is available at the Board of Trade. The Board of Trade reference is ESB/12070/60.

An unspecified quantity of electric passenger coaches.

The issuing authority and address to which bids should be sent is the Cairo Electric Railways & Heliopolis Oases Company, Heliopolis, Cairo. Specifications are available on application to the above address. The closing date is September 1, 1960. No further information is available at the Board of Trade. The Board of Trade reference is ESB/12453/60.

From South Africa:

1 vertical hydraulic press.

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. F. 8280: Vertical Hydraulic Press," should be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. Local representation is essential. The closing date is June 10, 1960. The Board of Trade reference is ESB/12481/60.

1 electric-motor driven milling machine

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. G. 8260: One Plain Horizontal Milling Machine" should be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. Local representation is essential. The closing date is June 10, 1960. The Board of Trade reference is ESB/12481/60.

From Pakistan:

2,290 vacuum brake metallic fittings.

The issuing authority and address to which bids should be sent is the Office of the Controller of Stores, N.W. Railway, Empress Road, Lahore. The tender No. is 210-S/14A(111)(PIC)/60. The closing date is June 1, 1960. The Board of Trade reference is ESB/12451/60.

Further details relating to the above tenders together with photo-copies of tender documents, unless otherwise stated, can be obtained from the Branch (Lacon House, Theobald's Road, W.C.1).

Notes and News

Bell's Asbestos & Engineering Holdings Limited.—The group profit attributable to Bell's Asbestos & Engineering Holdings Limited for 1959 was £311,067 (£304,761). The dividend was 20 per cent (same).

Under-water Cable near Caronte Bridge, French National Railways.—The first sentence of the paragraph on page 565 of our May 13 issue should have read: "The S.N.C.F. signalling cables on the bed of the Etang de Berre, alongside the Caronte Bridge which carries the Miramas-L'Estaque line over the waterway, were damaged by the anchor of a ship, and it was decided to replace them."

Closure of N.E. Region Stations and Depots.—

British Railways, North Eastern Region, has announced that certain stations and depots are to be closed from June 13 because of losses being incurred. Passenger facilities will be withdrawn from Lockington Station, on the Driffeld-Beverley line, and the nearby goods siding at Kilnwick Gate will be closed. The passenger service will be withdrawn from Hunslet Station, near Leeds. Lofthouse & Outwood Station, on the Leeds Central to Wakefield Westgate line, will be closed for passenger and full wagon-loads of goods traffic. The goods depots at Halifax St. Pauls, Pellon and Holmfild also will be closed from June 27, as will the lines used for goods traffic from Halifax St. Pauls to Holmfild and from Holmfild up to, but excluding, Halifax North Bridge. Approval for these measures has been given by the Transport Users' Consultative Committee for the Yorkshire Area and the Central Transport Consultative Committee.

There are, and will be, alternative arrangements for dealing with parcels and small consignments and wagon-loads of goods traffic. Bus services operate in the areas concerned.

Fabricated Steelwork by Rail, Clydebank to Milan.—A 1,300-mile through journey by rail from Clydebank West, near Glasgow, on April 1, conveyed a wagonload of 12 tons of fabricated steelwork used in construction of the English School at the Milan Triennale Architectural Exhibition. The method of building used for the project was designed by Brockhouse Steel Structures Limited in collaboration with the Consortium of Local Authorities, and the design of the Milan School was executed by the Nottinghamshire County Architect. The school is being built to show British achievements in school building. A German Federal Railway wagon was provided, and the journey was via the Harwich-Zeebrugge train ferry, Belgium, Germany, and Switzerland.

Driverless Platform Trucks at Wolverhampton Goods Depot.—Five driverless trucks built by E.M.I. Electronics Limited and operated on the Robotug system, are to be introduced at the British Railways, Western Region, goods depot at Wolverhampton Herbert Street early in June. They will be used in the goods shed, principally on transfer of goods between railway wagons and road vehicles. Approximately 100 wagons carrying over 160 tons of goods are received daily at this depot, and the five driverless platform-type trucks are designed to deal with this traffic with greater efficiency and economy. The Robotug system operates by the trucks following a single electrically energised wire laid in the floor from which a small voltage is induced in two sensing coils fitted to the tractor. It was described and illustrated in our issue of April 24, 1959.

Western Region Road Safety Campaign.—The Safety on the Roads Trophy, presented to the Western Region, British Railways, by the Company of Veteran Motorists for competition in the Region, has been won by the Shrewsbury District. The award is made annually to the district with the best record of freedom from blameworthy acci-



Loading steelwork on to German Federal Railway wagon at Clydebank West Goods Station, Scottish Region, for movement via Harwich/Zeebrugge ferry to Milan

dents. Four motor drivers, representing their colleagues in the District, attended at Paddington Station on May 9, when the General Manager of the Region, Mr. J. R. Hammond, handed the trophy to Mr. O. Veltom, District Traffic Superintendent, Shrewsbury, who was accompanied by Mr. F. V. Robinson, the District Commercial Officer. The drivers were: I. H. Tipton, of Ludlow, with safe driving awards for 25 years; E. H. Tipton, of Much Wenlock, with 24 years' safe driving awards; G. H. Stanley Wrexham (Parcels), and T. Johnstone, Wrexham (Goods), with 23 and 21 years' safe driving awards respectively. The illustration shows (left to right): Messrs. F. V. Robinson; R. L. Charlesworth, Commercial Officer; D. W. M. Wilson, Road Motor Engineer; E. R. Thomas, Assistant to Commercial Officer (Indoor); Motor Driver T.

Johnstone; Messrs. W. R. Stevens, Divisional Traffic Manager, South Wales; J. R. Hammond; O. Veltom; Motor Driver E. H. Tipton; Mr. C. J. Rider, Public Relations & Publicity Officer; and Motor Driver G. H. Stanley.

B.T.C. Harbour Charges Schemes.—The public inquiry into four charges schemes of the British Transport Commission, those concerned with Fleetwood, Grimsby, Hull, and Lowestoft Harbours, is to be held at the Niblett Hall, 3 (North) Kings Bench Walk, Temple, E.C.4, on May 24, starting at 10.30 a.m.

Associated Commercial Vehicles Limited.—The Directors of Associated Commercial Vehicles Limited have declared an interim dividend for the year ended September 30, 1960 of 7½ per cent (5 per cent) per £1 unit of the ordinary stock less tax. The improvement recorded in the accounts for the year ended September 30, 1959, has been maintained and the results for the half-year to March 31, 1960, show satisfactory improvement as compared with last year. Orders in both the home and export markets have increased. The total order book is now considerably in excess of the orders in hand at this time last year.

Glenfield & Kennedy Holdings Limited.—The group net profit of Glenfield & Kennedy Holdings Limited for 1959, was £326,773 (£229,838) and a dividend of 20 per cent (same) was declared. Fixed assets were £2,940,533 (£2,843,067). Net current assets were £4,720,280 (£4,837,938). Commitments £305,000 (£454,000). Sales at £8,780,000 (£9,044,000) were slightly below the records of the two previous years. Outstanding orders, £9,000,000 at the beginning of 1958 and £7,000,000 a year later, had by the beginning of 1960 fallen to just under £6,000,000. New business booked so far in 1960 shows an improvement on the 1959 period and there are grounds for hope of continued improvement in the position.

Re-use of Bridge Sections Near Tees-Side Marshalling Yard.—By re-use of 50-year-old bridge sections, British Railways, North Eastern Region, has saved some thousands of pounds in the construction of two new footbridges at Newport, near Middles-



Mr. J. R. Hammond presenting the Company of Veteran Motorists road safety trophy for the Western Region to Mr. O. Veltom, District Traffic Superintendent, Shrewsbury

brough. The bridges cross the railway between Thornaby and Middlesbrough, providing access from the Mandale Road to the Newport marshalling yards, where construction of new yards is in progress. In each footbridge the main centre spans between the supporting columns are 50-year-old wrought-iron sections reclaimed from closed stations at Cockfield Fell, near Bishop Auckland, and Hare Park, near Wakefield. Pre-fabricated supports and stairways of reinforced concrete have been used. Before erection the wrought-iron sections were stripped, examined, and tested to normal safety standards at the District Engineer's depot at Darlington. Apart from the fitting of permanent handrails, the bridges are now complete and in use.

N.E. Region Wins Punctuality Competition.

The North Eastern Region has won three out of the four British Railways Inter-Regional Punctuality Competitions for 1959. The competitions were instituted in 1956 as part of a punctuality drive. Two of the competitions, one for passenger trains and one for express freight trains, are for the highest degree of improvement achieved compared with the previous year. By reducing the number of minutes lost per 100 train miles run by 15.7 per cent for passenger and 3.4 per cent for express goods trains, the North Eastern Region took first place in both these competitions. The other two competitions, again one for passenger trains and one for express goods trains, are for absolute punctuality. The North Eastern Region was first in the passenger competition with 79.64 per cent of all passenger trains arriving in the Region reaching their destination on time. This was the highest Regional figure. In the goods competition the North Eastern Region was fourth.

Aluminium Development Association Meeting.

At the annual general meeting of the Aluminium Development Association on April 29, at 33, Grosvenor Street, London, W.1, the retiring President, Mr. Rudolf Hahn, presented the annual report. He noted that the continuing progress of the Association had been very satisfactory, with much work completed on the new three-year programme initiated during the year under review. Despite difficulties, such as the printing dispute, the general level of activity showed a further increase over previous years. Mr. W. Brining was elected President of the Association for the period 1960-61. Mr. Brining represents the Alumin Group of Companies on the A.D.A. Council. Mr. R. Hahn, who represents the Association of Light Alloy Refiners & Smelters Limited on the A.D.A., was elected Vice-president for the ensuing year.

Fare Alterations in N.E. Region.—Certain ordinary fares in the North Eastern Region of British Railways are to be increased from June 12. Ordinary second class fares for distances up to and including 200 miles will be increased by ½d. a mile. For 200-275 miles, the increase will taper downwards, and 276 miles and over, fares will remain unchanged. First class ordinary fares will be increased proportionately and remain at 50 per cent above second class. There is to be no increase this season in mid-week tickets (second class); in fact some will be reduced, because this year there will be an increased discount, at the rate of 25 per cent, from the existing (i.e. pre-increase) ordinary fares. Last year the discount was only 20 per cent. "Holiday runabout," "day line" and "rail-rover" tickets, advertised circular "all-in" tours, fares for drivers accompanying cars on the car/sleeper and car/carrier trains, reduced Saturday overnight period fares to Somerset, Devon, and Cornwall and weekend leave fares for members of



Sir Brian Robertson, Chairman of the British Transport Commission, presenting a shield won in the Inter-Regional Punctuality Competition to Mr. H. A. Short, General Manager, North Eastern Region, British Railways

H.M. Forces will remain unchanged. There is to be no general increase in cheap day fares.

Eyston Travels on Footplate.—On May 11, Captain George Eyston, O.B.E., M.C., M.I.Mech.E., M.S.A.E., one-time holder of the title "fastest man on earth," travelled on the footplate of the "Bristolian," the fastest train in Britain. He joined D.800 Swindon-built diesel-hydraulic locomotive *Benbow* at 8.45 a.m. for its run from Paddington and returned on the 4.30 p.m. from Bristol, again in the driver's cab. Captain Eyston will be remembered for his achievements in his car *Thunderbolt* at Bonneville,

U.S.A. In 1937, he attained a speed of 312 m.p.h. (and was awarded the Segrave Trophy). The following year he achieved 345.5 m.p.h. and, in 1938, he reached 357 m.p.h. Later, John Cobb raised the record to 394.2 m.p.h.

New Depot at Watford.—Work is to start soon on the building of a new freight terminal adjacent to the present goods depot at Watford, British Railways, London Midland Region. When it is completed sundries and full-load traffic which are now dealt with in the area bounded by Harrow, Harpenden, and Great Missenden may all be concentrated at Watford. There will be new offices and



Captain George Eyston (centre) with Mr. R. F. Hanks, Chairman of the Western Area Board of the B.T.C., and Driver S. J. Palmer, of Bristol (see reference above)

amenities for the staff, and the Watford cartage fleet which at present is dispersed to other depots in the area will be concentrated at the new terminal. New sidings will also be laid down for marshalling wagons, and two new sheds for received and sundries traffic will be built. Modern handling equipment is to be installed, including a 475 ft. long slat conveyor and an overhead gantry crane with a 58 ft. span besides a mobile crane. The scheme will cost some £500,000 and the main contractor is Leonard Fairclough Limited. The work will be carried out under the direction of Mr. A. N. Butland, Chief Civil Engineer, London Midland Region.

Forthcoming Meetings

- May 26 (Thu.) to June 8 (Wed.).—British Railways, Southern Region, Lecture & Debating Society. Scandinavian Tour.
- May 27 (Fri.) to June 2 (Thu.).—Permanent Way Institution, all sections. Summer Convention at Ostend, Belgium.
- May 27 (Fri.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, S.W.1. Joint symposium with the Aluminium Development Association on the application of aluminium to railway rolling stock. Morning session, 10 a.m. to 12.30 p.m. Afternoon session, 2.30 to 5 p.m.
- June 2 (Thu.).—The Model Railway Club, at Keen House, Calshot Street, Kings Cross, N.1., at 7.45 p.m. "Scenic Modelling," a talk by Mr. E. B. Clothier.
- June 10 (Fri.).—Permanent Way Institution, East Anglia Section. Visit to Ford Motor Co. Ltd., Dagenham.
- June 10 (Fri.).—The Railway Club, at the Royal Scottish Corporation, Fetter Lane, E.C.4, at 7 p.m. Paper on "The Thetford & Watton Railway and its associates," by Mr. B. D. J. Walsh.

Railway Stock Market

After a modest rally, stock markets again developed an uncertain trend, with buyers showing caution, though there was selective demand for shares which offer above the average yields and appear to have been reduced unduly in price in the reaction of the past few weeks.

Apart from considerable uncertainty whether the credit squeeze will be increased later in the year, conflicting views on the outlook for Wall Street continue to make for a cautious approach to stock markets.

There was no outstanding feature among foreign rails, though Costa Rica ordinary stock held its recent rise to 37½, as did the second debentures at 110. Chilean Northern first debentures eased fractionally to 59; Brazil Railway bonds were again quoted at 6; but Mexican Central "A" bearer debentures gained a point at 59.

Antofagasta ordinary stock further strengthened from 14½ to 14¾, while the preference stock held its improvement to 30½, and the 5 per cent (Bolivia) debentures remained at 105.

Sao Paulo Railway 3s. units kept at 1s. 3¼d. and United of Havana second income stock at 6; but International of Central America shares were slightly higher at \$24, though the preferred came back from \$117½ to \$113½. Guayaquil & Quito assented bonds again were quoted at 77.

Reflecting the Wall Street trend, Canadian Pacific have come back from \$47 to \$45½, but the preference stock rallied further from

59½ to 60½, and the 4 per cent debentures were again 65. White Pass shares eased to \$13.

West of India Portuguese capital stock kept at 111 and Barsi Light Railway stock at 16. Nyasaland Railways shares continued to be quoted at 10s. and the 3½ per cent debentures were 48½d.

Among engineering and kindred shares, Wagon Repairs 5s. shares moved up from 11s. 6d. a week ago to 12s. 4½d., but Gloucester Wagon 10s. shares eased from 11s. 9d. to 11s. 3d. Charles Roberts 5s. shares kept at 12s. 6d., though Beyer Peacock 5s. shares eased from 7s. 6d. to 7s. 3d., but Birmingham Wagon were firmer at 32s. 9d. and G. D. Peters again quoted at 19s. 4½d. North British Locomotive at 9s. were also the same as a week ago.

Westinghouse Brake have been steady at 48s., at which there is a yield of over 4½ per cent on the basis of last year's 11 per cent dividend. Helped by the chairman's annual review, Vickers have risen from 29s. 6d. to 30s. 3d., while there was a rally in Babcock & Wilcox from 35s. 1½d. to 38s. 9d., and Clarke Chapman were better at 50s. Davy-United rose to 107s.

A sharp rebound in Guest Keen caused an increase in the price up to 85s., while steel shares generally were better. There are reports that the Richard Thomas share offer may be made next month if market conditions are favourable: it could absorb main attention in this section of markets in the near future.

Pollard Bearing 4s. shares were firm at 36s. 6d., Ransomes & Marles 5s. shares were 23s. 3d. and Tube Investments 77s. while T. W. Ward strengthened to 141s. B.I. Cables were 54s. 6d. and English Electric rallied from 38s. 7½d. to 39s. 3d. Associated Electrical rose from 52s. 7½d. to 53s. 10½d., and General Electric from 38s. 3d. to 38s. 10½d.

Crompton Parkinson 5s. shares firmed from 11s. 9d. a week ago to 12s. 3d. Pressed Steel 5s. shares gained 1s. at 33s. and Dowty Group 10s. shares moved up from 31s. 6d. to 32s. 9d.

Stone-Platt shares eased a few pence to 52s. 6d. Ruston & Hornsby rallied to 28s. 6d. while Broom & Wade 5s. shares held steady at 19s. 4½d.

OFFICIAL NOTICES

RHODESIA RAILWAYS. Vacancies for Signals and Communications Engineers. Vacancies, exist on the Permanent Staff for Signals and Communications Engineers for service in the Chief Engineer's Department of the Rhodesia Railways.

Preference will be given to applicants who have had previous experience in the design, installation and maintenance of modern colour light signalling and/or telecommunication systems with a Railway Administration or with a firm of equipment manufacturers.

Applicants should hold a degree in Electrical Engineering at a recognised University or be Corporate Members of the Institution of Electrical Engineers. Applicants who have passed Parts I and II of the Institution examinations will be considered for appointment to the grade of Technical Assistant until such time as they become Corporate Members and are, therefore, eligible for transfer to the Professional Grade. Successful candidates will be expected to become Corporate Members of the Institution of Railway Signal Engineers in due course.

The salary scale for Assistant Engineers is £1,000 to £1,800 per annum, plus a Cost of Living Allowance at present calculated on 12% of the basic salary, subject to a maximum of £13.15.0 per month. The commencing salary will depend upon previous experience of applicants. The annual increments in the above scale are as follows:—

£1,000 x £100 to £1,200
£1,200 x £50 to £1,500
£1,500 x £100 to £1,800

Further advancement to the grade of District Signals and Communications Engineer on the salary scale £1,800 x £100 to £2,100 is possible as and when vacancies occur. Promotion to these posts is by selection.

Membership of the Contributory Pension Fund and Medical Fund is obligatory and the usual Railway privileges in respect of travelling concessions, leave, etc., will apply.

Income Tax in the Federation is not unreasonable

and at the present time, a married man with one child, earning £1,100 per annum would not be liable.

Housing is provided at a moderate rental for married Engineers; the rental payable is £7.10.0 per month for Officers in receipt of a salary under £1,700 per annum, and £10 per month for Officers in receipt of higher salaries.

Full particulars with regard to age, training, qualifications and experience should be submitted together with copies of recent testimonials to: The London Agent, Rhodesia Railways, 241, Salisbury House, London Wall, London, E.C.2, from whom full details regarding conditions of service may be obtained.

BRITISH TRANSPORT COMMISSION invite applications for the following posts in the Chief Signal Engineer's Department, at 222, Marylebone Road, N.W.1:—

(Post A) Assistant (Development): Salary Range: £1,815-£2,155

Wide experience in design, manufacture and application of electrical apparatus in the field of railway signalling. Conversant with modern materials and techniques for this purpose, including the application of electronics, and competent to direct the activities of design teams. Professional qualifications essential.

(Post B) Assistant (Equipment): Salary Range £1,420-£1,695

Wide experience in design and development in electric and electro-mechanical signalling apparatus. Ability to employ modern materials and techniques for this purpose.

(Post C) Assistant (Electronics): Salary Range £1,200-£1,420

Experience in original circuit design for electrical signalling systems. In particular, required to be familiar with the use of electronic techniques for this purpose.

Superannuation scheme: certain travel facilities: medical examination. Write stating post reference, age, qualifications and experience to Director of Establishment, British Transport Commission, 222, Marylebone Road, London, N.W.1, within 14 days.

BRITISH TRANSPORT COMMISSION invite applications for the following post at the British Railways School of Transport, Derby:—

DIESEL TRACTION INSTRUCTOR (MECHANICAL ENGINEERING): Salary Range £83-£113.10

Instruct Technical and Supervisory staff in the principles, construction, operation and maintenance of Diesel Locomotives and Multi-Unit Stock. Sound theoretical knowledge and practical experience of Medium and High Speed Diesel Engines used in Rail Traction essential. Knowledge of electrical transmission and control systems desirable. Professional Mechanical Engineering qualifications required. Experience in teaching desirable. Post is non-residential.

Superannuation scheme: certain travel facilities: medical examination. Write stating age, qualifications and experience to Director of Establishment, British Transport Commission, 222, Marylebone Road, London, N.W.1, within 14 days.

BRITISH TRANSPORT COMMISSION require Assistant Projects Development Engineer (Design) for Locomotive Carriage & Wagon Development Unit, located at Darlington. Applicants should have a good general education to Higher National Certificate in Mechanical Engineering or equivalent, have served an apprenticeship in a Railway or contractor's works, preferably engaged on Railway rolling stock and possess intimate knowledge of the design of such stock. Capable of taking charge of an office engaged on new developments in connection with locomotives, carriages and wagons.

Salary range: £1,590-£1,920. Superannuation Scheme. Certain travel facilities. Medical examination. Write, giving age, qualifications and experience, to Director of Establishment, British Transport Commission, 222, Marylebone Road, London, N.W.1, within 14 days.

REQUIRED for the Southern Railway of Peru.

(a) District Running Superintendent. Must have served a full apprenticeship in an Engineering Workshop (preferably locomotive) and had at least two years' subsequent experience as an administrative and technical officer in the running department of a railway. A knowledge of Diesel Traction would be an advantage although the immediate responsibility would be for steam operation. The position is at Juliaca, 12,500 ft. above sea level. Free furnished flat, fuel and light available. Age over 25 years. Salary offered £1,500 per annum.

(b) Diesel Engineer (Operation). Qualifications as for (a) with two years' subsequent experience on Diesel Electric Locomotive manufacture or maintenance. Should have a technical education up to the National Certificate standard in Mechanical Engineering. Must be fit and prepared and able to travel at an altitude up to 16,000 ft. Salary offered, £1,500 per annum. Please apply in writing to the Peruvian Transport Purchasing Company Limited, Suffolk House, 5, Laurence Pountney Hill, Cannon Street, London, E.C.4.

FOR SALE Small 5-ton Diesel Shunting Loco. standard 4 ft. 8½ in. gauge. Cheap to clear £400 or best offer.—Apply C. Purley, Bognor Regis 2201.

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